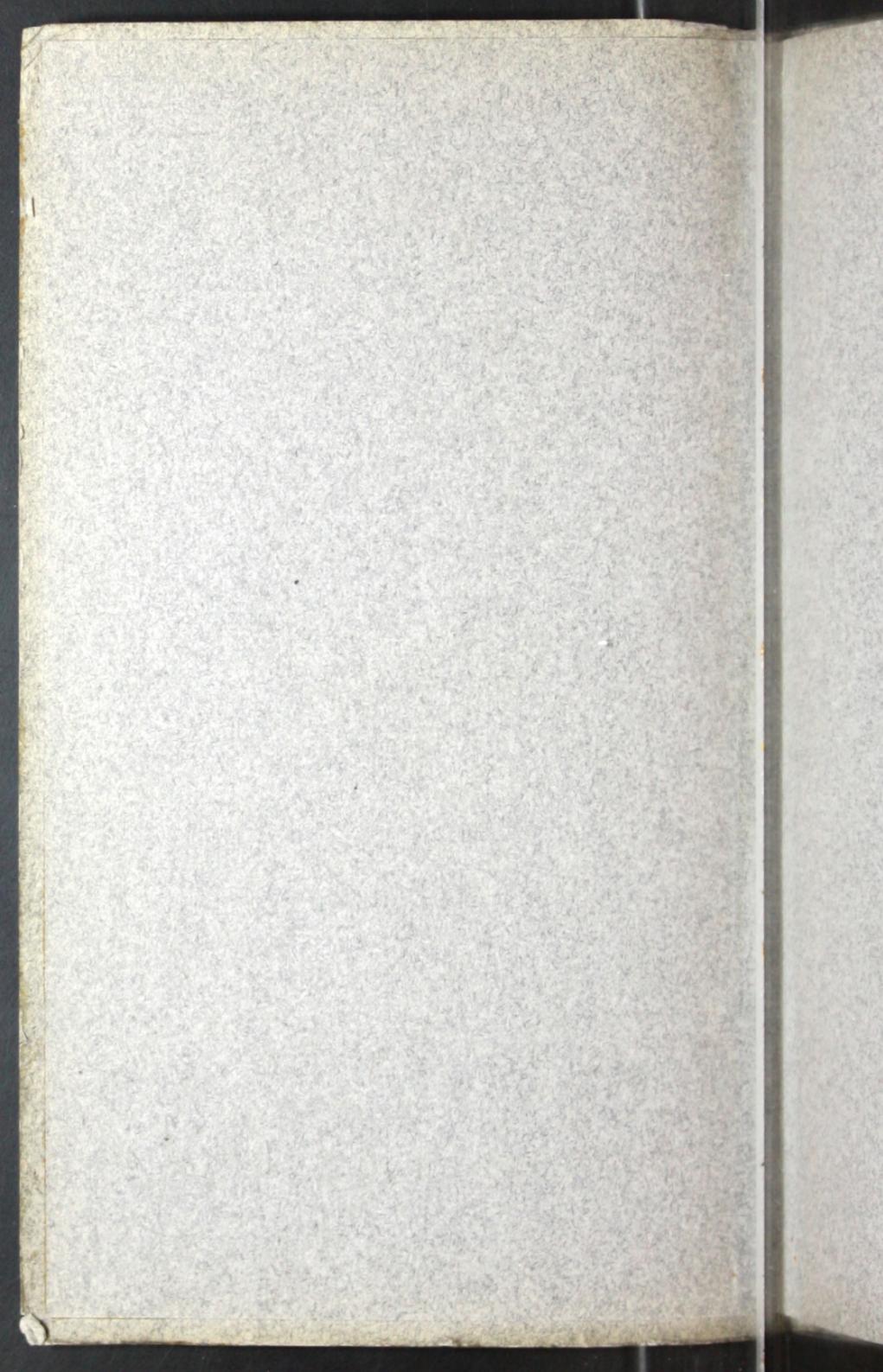


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# CHICAGO BRIDGE & IRON WORKS







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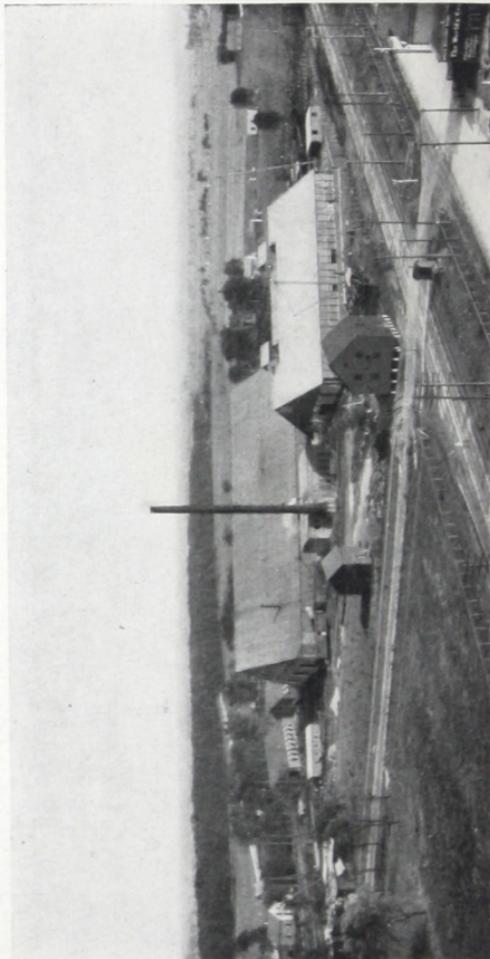
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CHICAGO BRIDGE AND IRON WORKS

# CHICAGO BRIDGE *and* IRON WORKS

*Horace E. Horton proprietor*

*Engineers & Contractors for*

## Metal Structures



*Manufacturers & Builders of  
Water Towers, Stand Pipes,  
Smoke Stacks, Grain Tanks,  
Bridges, Riveted Pipe,  
Roof Trusses, Buildings,  
Locomotive Turntables.*

*Office & Works*

THROOP & 105TH STREETS  
**CHICAGO Illinois U. S. A.**

# *Metal Structures*



LOUISVILLE, KY.

Capacity, 1,200,000 gallons      Height, 220 feet  
Louisville Water Co.

*Standard design*

# *Chicago Bridge & Iron Works*



THE value of elevated tanks for water storage has long been recognized by all leading engineers and those familiar with the subject of water works design. As the task of determining which type of structure is best adapted to the needs of any individual community, or location, often devolves upon those having made no special study of this question, it is the object of this booklet—our seventh edition of Metal Structures—to point out, briefly, the advantages of the several types of steel tanks which we are manufacturing.

Nearly all the structures illustrated have been built since our last issue and represent the best and most advanced types of this line of construction.

The data and tables on the latter pages will be found useful in determining the size of tank and height of structure required.

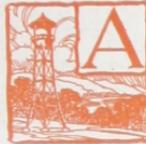
# *Metal Structures*



COLUMBUS, OHIO  
Capacity, 100,000 gallons      Height, 150 feet  
Columbus State Hospital

*Standard design*

# *Chicago Bridge & Iron Works*

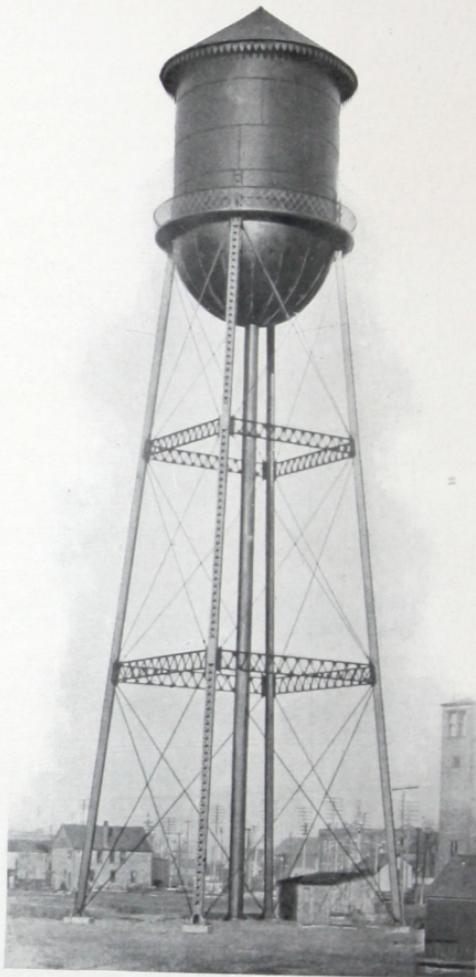


N elevated reservoir is a necessity for the most satisfactory and economical operation of any water works plant. In this way a reserve supply for fire protection is always at hand, the pressure on the mains is high and uniform, and the cost of pumping is reduced to a minimum, as an inspection of the data on the following page will show.

Where this reservoir can be located on a natural elevation, a tank of large diameter and low height placed upon the ground is preferable; where no elevation can be reached at a reasonable cost, the steel tower and tank is the logical substitute.

In deciding which is the more desirable, account should be taken of the advantages of central location as well as the cost of laying the additional pipe usually required to reach the desired elevation.

# Metal Structures



CHICAGO, ILL.  
Capacity, 180,000 gallons      Height, 145 feet  
Washington Heights Pumping Station  
City Water Works

*Standard design*

Chicago

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1901  
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# Chicago Bridge & Iron Works



HE following figures show the cost of fuel for pumping at the Washington Heights Station of the Chicago Water Works for a period of five years, during which the plant was operated by direct pressure, and by pumping to an elevated reservoir.

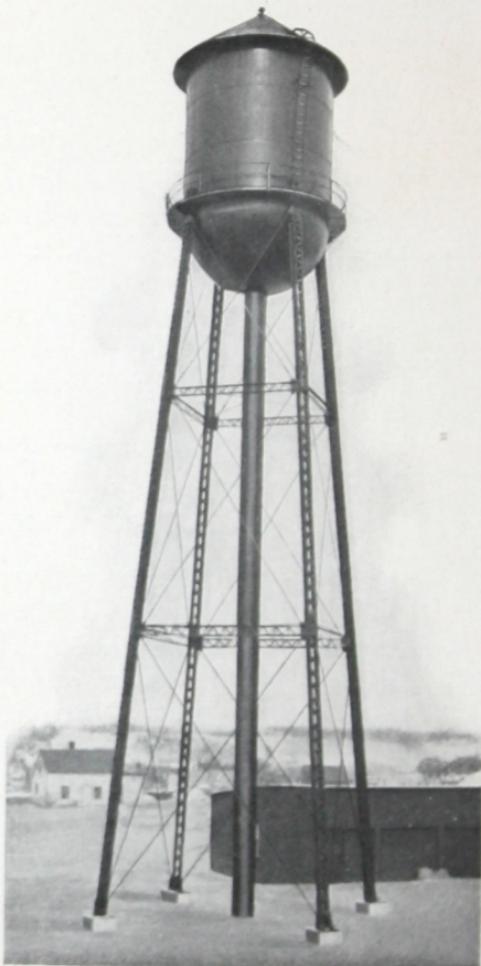
These figures show the saving in fuel alone accomplished by the latter method, the saving in wear and tear on the machinery and mains is inestimable.

| Years | Million Gals. Pumped | Billion Foot Lbs. | Total Cost of Fuel | Cost per Billion Ft. Lbs. |
|-------|----------------------|-------------------|--------------------|---------------------------|
| 1899  | 107.7                | 98                | \$1453             | \$14.82                   |
| 1900  | 118.2                | 100               | 2345               | 23.45                     |
| 1901  | 139.1                | 94                | 2852               | 30.50                     |
| 1902  | 157.2                | 187               | 2028               | 10.84                     |
| 1903  | 243.7                | 290               | 2508               | 8.65                      |

Note: During 1899 and a portion of 1900 a wood tank was being used. This leaked so badly that it was abandoned and the system operated by direct pressure until January, 1902, when the steel tank illustrated opposite was put into service.

These figures were compiled from the monthly reports covering the entire period.

# Metal Structures



TICONDEROGA, N. Y.  
Capacity, 50,000 gallons      Height, 104 feet  
International Paper Co.

*Standard design*



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Several  
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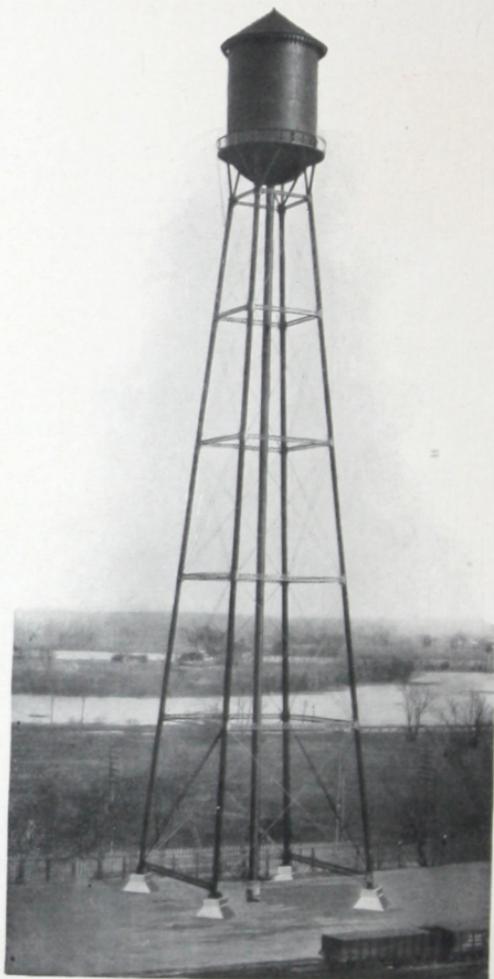
# Chicago Bridge & Iron Works



HE first metal structures used for the storage of water were stand pipes, built of small diameter and having sufficient height to give the desired pressure when filled. These have always proven very unsatisfactory. The amount of serviceable water stored in such a tank is only a fraction of the total capacity, as it is well recognized that in a level town any water stored below an elevation of eighty feet is of little or no value for fire protection.

Several times as much water can always be stored above this height, for the same cost of structure, by using an elevated tank rather than a stand pipe. The tall stand pipe presents other obvious disadvantages in the matter of extreme variation of pressure which it gives between the two conditions of being full and empty.

# Metal Structures



CAMDEN, N. J.  
Capacity, 150,000 gallons      Height, 242 feet  
New York Shipbuilding Co.

*Special design*

*res*

# Chicago Bridge & Iron Works



CITIES and villages should be sure to get their tank large enough. There should be at all times enough water stored in reserve to furnish several fire streams and supply the domestic consumption when the pumps are not running. Thirty gallons per inhabitant, with a liberal allowance for increase, should be the minimum, and no tank for this service should have a less capacity than thirty thousand gallons.

Public and private institutions should make careful investigation of the amount of water they use and allow a large excess to give them proper fire protection.

The capacity and height of tanks for fire protection to factory buildings is generally prescribed by the insurance companies.

# Metal Structures



WINNIPEG, MAN., CANADA

Capacity large tank, 125,000 gallons      Height, 135 feet  
Capacity small tank, 10,000 gallons

Canadian Pacific Ry.

*Standard design*

# *Chicago Bridge & Iron Works*



S primary sources of supply to automatic sprinkler equipments our steel tanks are invaluable on account of their long life, small cost for maintenance and the fact that they are never in danger of bursting suddenly with attendant loss of life and property.

Having built a large number of structures for this purpose we are entirely familiar with the insurance companies' requirements for this class of work.

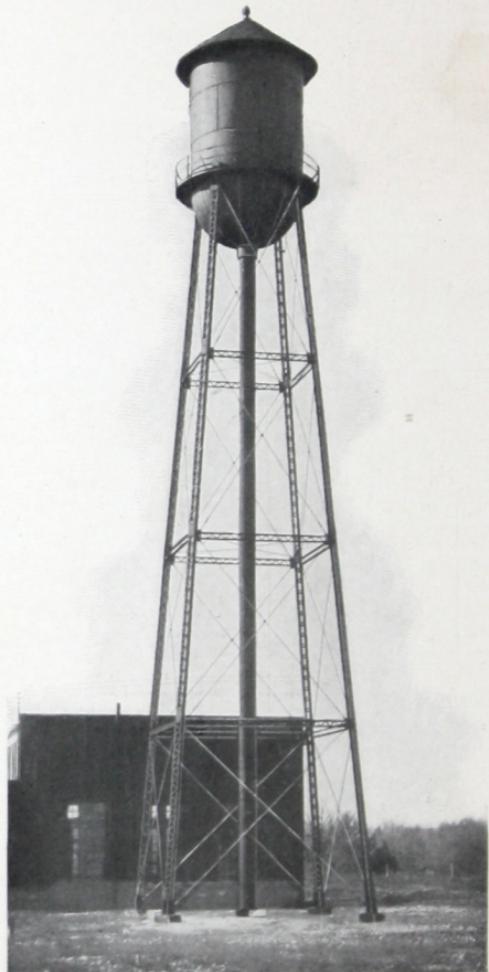
The illustration shows a new type of structure which we have developed, the larger tank being kept full of water for fire protection and the smaller suspended tank being used for domestic service in the buildings.

The smaller tank can be built in this way very economically.

# Metal Structures



Chicago



GALT, ONT., CANADA  
Capacity, 30,000 gallons      Height, 114 feet  
Goldie and McCulloch Co.

*Standard design*

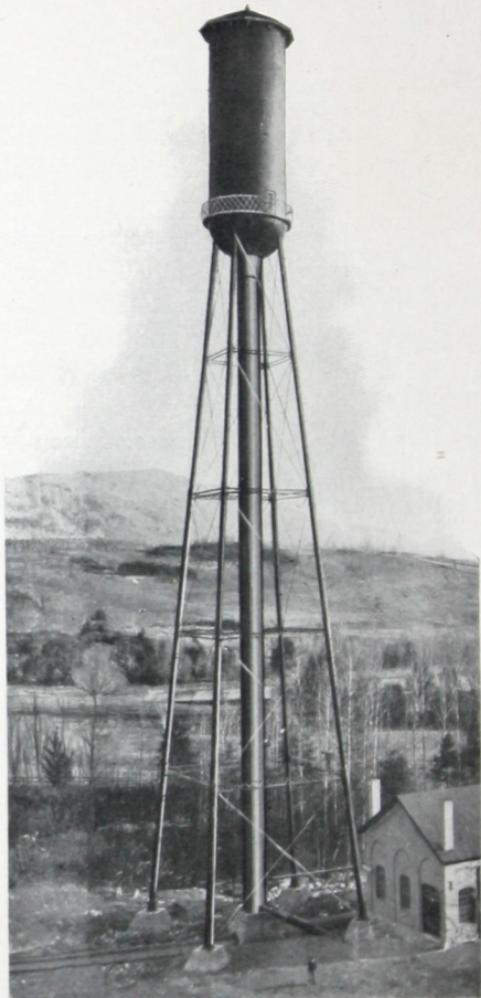


UR tank at Louisville, illustrated on page four, has attracted widespread attention on account of its great size. This is the largest elevated tank ever built, having a capacity of 1,200,000 gallons and a height of 220 feet from top of foundations to top of tank. The tank is 50 feet in diameter and 90 feet deep, with 48" riveted steel riser pipe.

This structure is built in accordance with our standard specifications and in the same general proportions as our smaller standard designs, to which fact is due the utter failure of the photograph to convey an adequate impression of its dimensions.

This work illustrates the possibilities of the construction of similar tanks on very high towers for fire protection in the congested districts of our large cities. The advantages of such a structure are obvious, the only objection heretofore offered to this idea has been that their construction was impractical. We are prepared to construct tanks of much greater dimensions than the one referred to.

# Metal Structures



NORTH RUTLAND, VT.  
Capacity, 70,000 gallons. Height, 220 feet  
Chittenden Power Co.

*Special design*

Chicago



This house and than the riser pipe from the within the ators in t the stored vent more When th reduced of the col flowing into an o constant tained.

We this purp

# *Chicago Bridge & Iron Works*



**N**the opposite page is shown a water tower built in connection with a hydro-electric power development.

This structure is located at the power house and has a total height slightly greater than the hydraulic head at that point. The riser pipe is directly connected to the pipe line from the reservoir, so the water level is always within the tank. When one or more generators in the power station are quickly loaded the stored water in the tank is sufficient to prevent more than a very small drop in head. When the load at the station is suddenly reduced by a large amount, the surplus energy of the column of water 8,000 feet long that is flowing down from the reservoir, is expended into an overflow at the top of the tank. Surging in the pipe line is thus prevented and a constant pressure at the water wheels is maintained.

We have built several water towers for this purpose.

# Metal Structures



Chicago



COLLEGE HILL, OHIO  
Capacity, 100,000 gallons      Height, 154 feet  
City Water Works

*Special design*

# *Chicago Bridge & Iron Works*



We are especially well prepared to undertake work which has to be designed to meet unusual conditions or requirements.

Being specialists in water tower design, we are at all times ready and willing to offer our advice, or to otherwise assist those in need of such a structure to formulate their requirements.

We can, of course, make much prompter deliveries when our standard designs are adhered to. These, the result of years of experience and careful study, will be found well adapted to almost every need.

The following illustrations give a fair idea of the general appearance of our standard water towers built in heights ranging from two to seven stories.

# *Metal Structures*



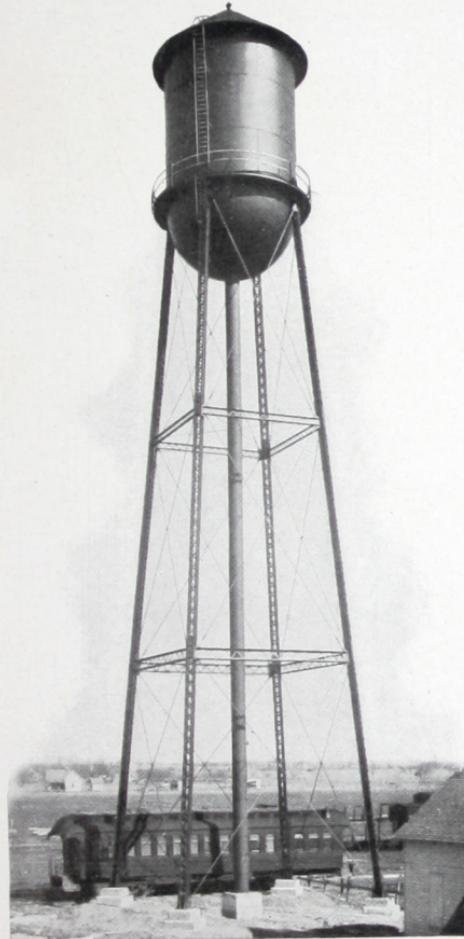
NORTH FT. WORTH, TEX.

Capacity, 100,000 gallons      Height, 100 feet  
City Water Works

*Standard design*

*es*

*Chicago Bridge & Iron Works*



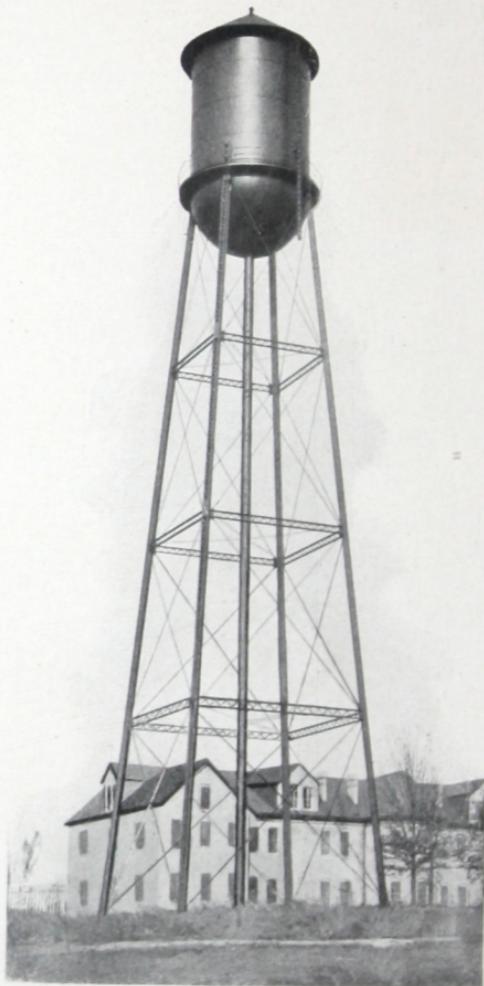
ST. ELMO, ILL.  
Capacity, 60,000 gallons      Height, 120 feet  
City Water Works

*Standard design*

# *Metal Structures*



Chicago



LITTLE ROCK, ARK.

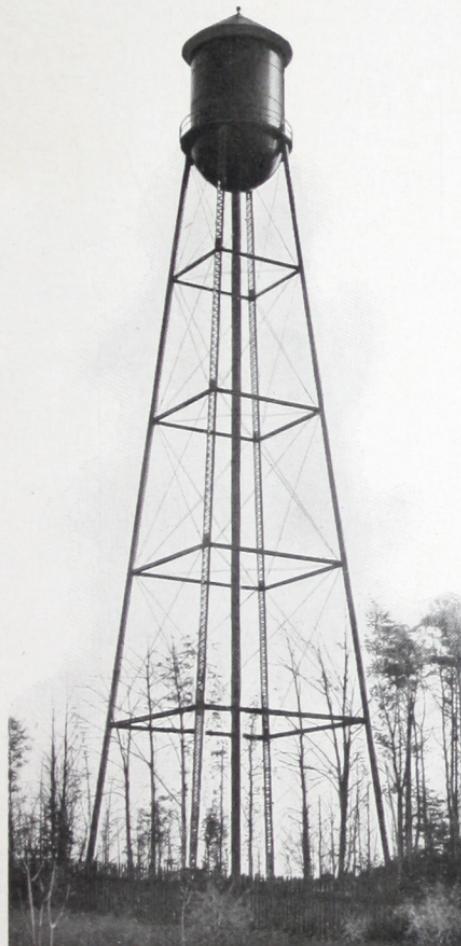
Capacity, 100,000 gallons      Height, 159 feet  
State Asylum

*Standard design*

*res*

*design*

# Chicago Bridge & Iron Works



TOCOMA PARK, MD.

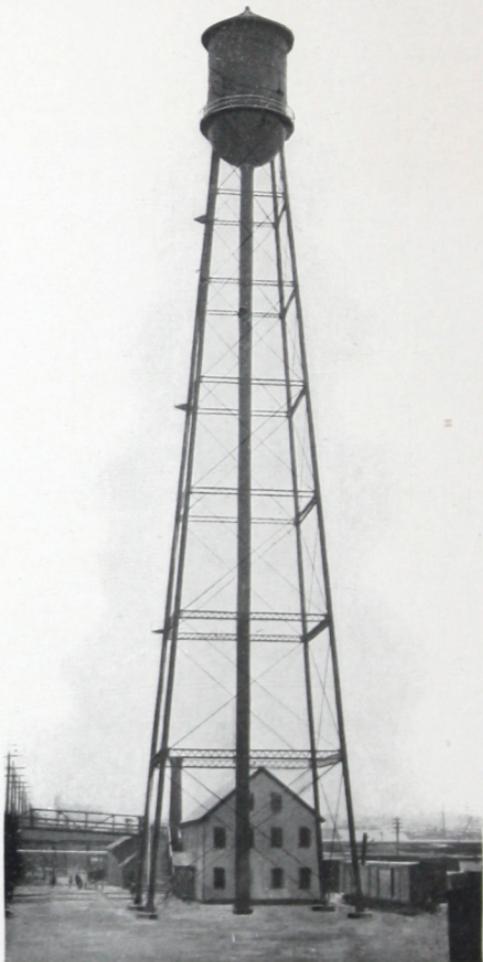
Capacity, 50,000 gallons      Height, 164 feet  
City Water Works

*Standard design*

# Metal Structures



Chicago



BOSTON, MASS.  
Capacity, 100,000 gallons      Height, 239 feet  
Boston and Maine R. R.

*Standard design*



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# Chicago Bridge & Iron Works



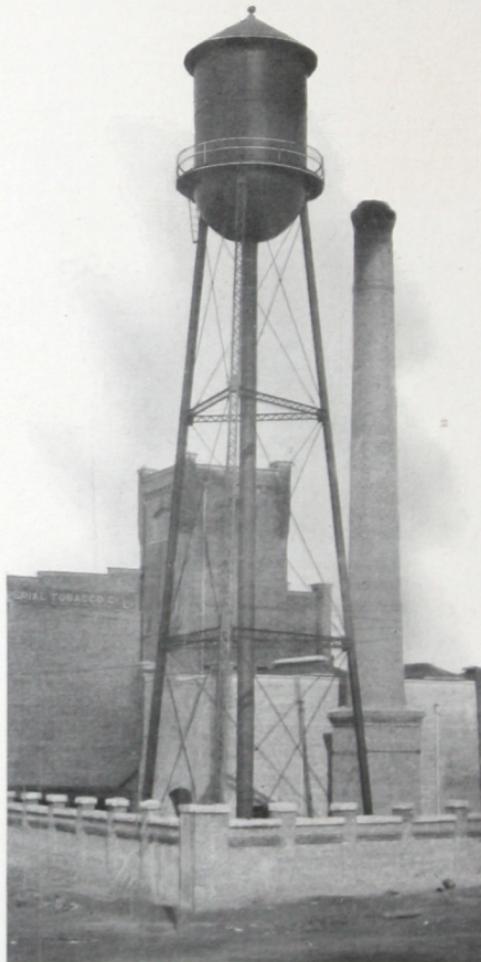
E designed and erected the first hemispherical bottom tank of the type shown in the foregoing illustrations in 1894. The high grade of work we are now doing is the result of twelve years of experiments and improvements along these same lines. We now have drawings and templets on hand for almost every size of structure, which enables us to make the promptest shipments and insures an absolute fit of all connections. Our organization for handling this work is such that poor workmanship of any kind is practically impossible. We gladly refer to our past customers, shown in the list commencing on page 49, with confidence that all would speak of our work in highest terms.

The two following illustrations show designs which are most economical for tanks of small capacity.

# Metal Structures



Chicago



WILSON, N. C.

Capacity, 25,000 gallons      Height, 100 feet

Imperial Tobacco Co.

*Standard design with three posts*

*res*

*Chicago Bridge & Iron Works*



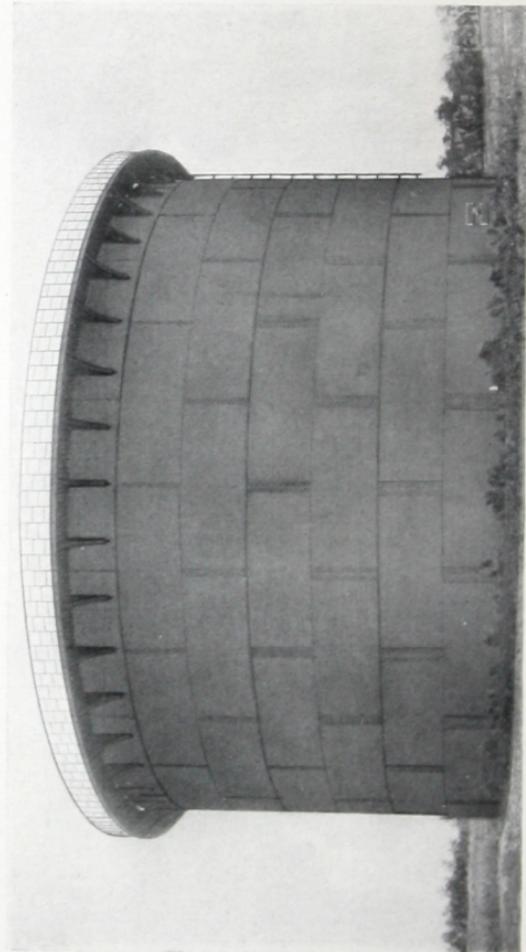
SUMMIT, ILL.

Capacity, 5,000 gallons      Height, 46 feet

Resurrection Cemetery

*Standard design*

# Metal Structures



Capacity, 2,380,000 gallons

SCHENECTADY, N. Y.

Diameter, 90 feet. Height, 50 feet

City Water Works

# *Chicago Bridge & Iron Works*



HERE a tank can be located upon a natural elevation the most economical form is to make the diameter ten to twenty per cent greater than the height. In no case should the height exceed sixty or seventy feet.

There have been a great many failures of stand pipes recorded, the majority of which are traceable to weakly riveted joints. We wish to call attention to the tables on riveted joints, pages 44 to 48, which have been prepared especially for tank and stand pipe work. All other published tables as far as we know have been designed for boiler work, which must be made tight against high steam pressure and which makes the character of joint required entirely different from that needed in a tank.

# Metal Structures



Chicago



MENDENHALL, MISS.  
Capacity, 50,000 gallons  
Gulf and Ship Island R. R.

*Standard design*

*ires*

*design*

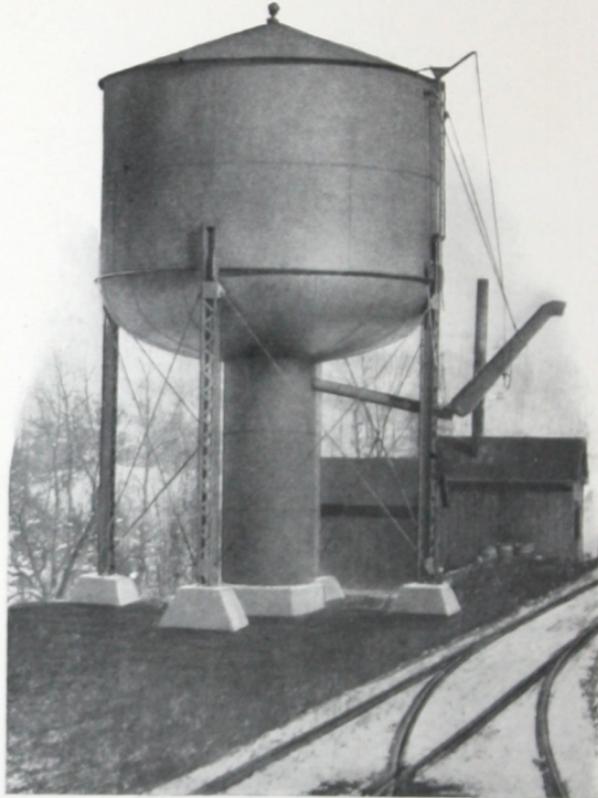
# Chicago Bridge & Iron Works



EAST WINONA, WIS.  
Capacity, 100,000 gallons  
Chicago, Burlington and Quincy Ry.

*Standard design*

# Metal Structures



LOCK HAVEN, ILL.  
Capacity, 60,000 gallons  
Chicago, Peoria and St. Louis Ry.

*Standard design*

Chicago



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will be but  
will be as  
railway use

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*res*

# Chicago Bridge & Iron Works



STEEL tanks are being adopted very rapidly by the railroads. Unlike wood tanks, they do not leak, rot out, burst or burn, and the expense of maintenance is much less. It will be but a few years until the wooden tank will be as obsolete as the wooden bridge for railway use.

Our standard railway tanks, on account of the economy effected in their design, cost little if any more than a wood tank on a steel trestle.

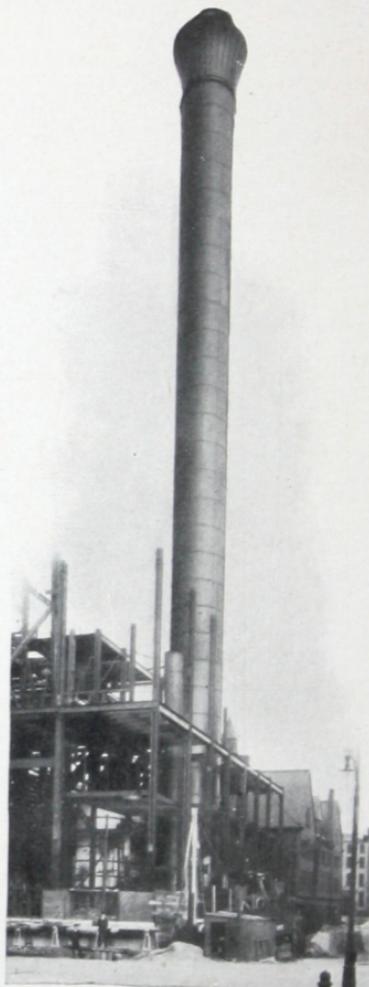
The riser pipe is built of sufficient size to prevent freezing in the coldest weather. This removes the necessity of wooden frost casing, and puts the tank in the class of permanent structures.

This pipe is also designed to act as a settling basin for sediment, which may be drawn off through the blow-off valve in the bottom without emptying the tank.

# Metal Structures



Chicago



DETROIT, MICH.  
Diameter, 14'-6"  
Murphy Power Co.

Height, 242 feet



for a distance  
the britchen  
above that  
plaster.

The fo  
chimney nee

## HEIGHT OF CHIMNEYS

| Diam.<br>in. in. | 50  | 60  |
|------------------|-----|-----|
| 18               | 23  | 25  |
| 21               | 35  | 38  |
| 24               | 49  | 54  |
| 27               | 65  | 72  |
| 30               | 84  | 92  |
| 33               | 105 | 111 |
| 36               | 124 | 131 |
| 39               | 141 | 148 |
| 42               | 158 | 165 |
| 45               | 174 | 182 |
| 48               | 190 | 198 |
| 51               | 205 | 213 |
| 54               | 220 | 228 |
| 57               | 234 | 242 |
| 60               | 247 | 255 |
| 63               | 260 | 268 |
| 66               | 272 | 280 |
| 72               | 298 | 306 |
| 78               | 324 | 332 |
| 84               | 350 | 358 |
| 90               | 375 | 383 |
| 96               | 400 | 408 |
| 108              | 442 | 450 |
| 120              | 480 | 488 |

## REDUCTION

Total length of fl  
Chimney Dv't in

# Chicago Bridge & Iron Works



**W**E design and construct self-supporting steel smoke stacks of any size. We recommend in all cases that they be lined for a distance of thirty or forty feet above the britchen connection with fire brick, and above that with common brick or cement plaster.

The following table shows the size of chimney necessary for a given boiler rating:

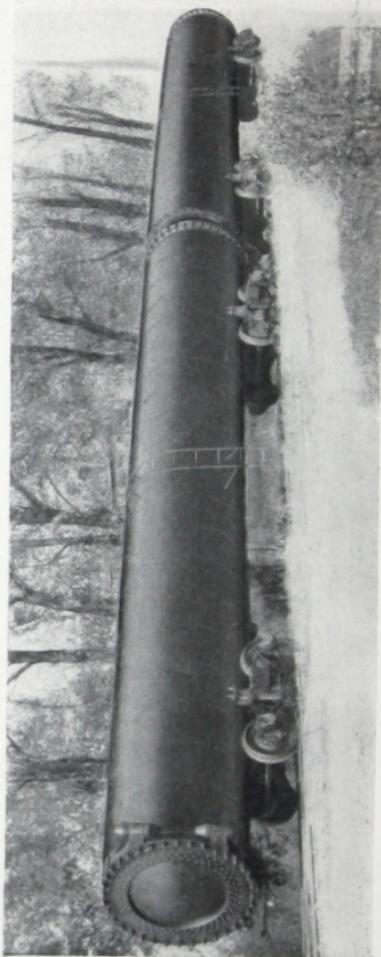
HEIGHT OF CHIMNEYS IN FEET—COMMERCIAL HORSE POWER

| Diam.<br>in. in. | 50 | 60  | 70  | 80  | 90   | 100  | 110  | 125  | 150  | 175  | 200 |
|------------------|----|-----|-----|-----|------|------|------|------|------|------|-----|
| 18               | 23 | 25  | 27  | —   | —    | —    | —    | —    | —    | —    | —   |
| 21               | 35 | 38  | 41  | —   | —    | —    | —    | —    | —    | —    | —   |
| 24               | 49 | 54  | 58  | 62  | —    | —    | —    | —    | —    | —    | —   |
| 27               | 65 | 72  | 78  | 83  | —    | —    | —    | —    | —    | —    | —   |
| 30               | 84 | 92  | 100 | 107 | 113  | —    | —    | —    | —    | —    | —   |
| 33               | —  | 115 | 125 | 133 | 141  | —    | —    | —    | —    | —    | —   |
| 36               | —  | 141 | 152 | 163 | 173  | 182  | —    | —    | —    | —    | —   |
| 39               | —  | 183 | 196 | 208 | 219  | —    | —    | —    | —    | —    | —   |
| 42               | —  | 216 | 231 | 245 | 258  | 271  | 294  | 318  | 341  | 364  | —   |
| 48               | —  | —   | 311 | 330 | 348  | 365  | 389  | 428  | 459  | 491  | —   |
| 54               | —  | —   | 363 | 427 | 448  | 472  | 503  | 551  | 594  | 635  | —   |
| 60               | —  | —   | 505 | 539 | 565  | 593  | 632  | 692  | 748  | 797  | —   |
| 66               | —  | —   | 658 | 694 | 728  | 776  | 849  | 918  | 981  | —    | —   |
| 72               | —  | —   | 792 | 835 | 876  | 934  | 1023 | 1105 | 1181 | —    | —   |
| 78               | —  | —   | —   | 995 | 1038 | 1107 | 1212 | 1310 | 1400 | —    | —   |
| 84               | —  | —   | —   | —   | 1163 | 1214 | 1294 | 1418 | 1531 | 1637 | —   |
| 90               | —  | —   | —   | —   | 1344 | 1415 | 1496 | 1639 | 1770 | 1893 | —   |
| 96               | —  | —   | —   | —   | 1537 | 1616 | 1720 | 1876 | 2027 | 2167 | —   |
| 108              | —  | —   | —   | —   | —    | —    | —    | 2290 | 2470 | 2637 | —   |
| 120              | —  | —   | —   | —   | —    | —    | —    | 2827 | 3049 | 3255 | —   |

REDUCTION OF CHIMNEY DRAFT BY LONG FLUES

| Total length of flues in ft | 50  | 100 | 200 | 400 | 600 | 800 | 1000 | 2000 |
|-----------------------------|-----|-----|-----|-----|-----|-----|------|------|
| Chimney Dr'ft in per cent   | 100 | 93  | 79  | 66  | 58  | 52  | 48   | 35   |

# *Metal Structures*

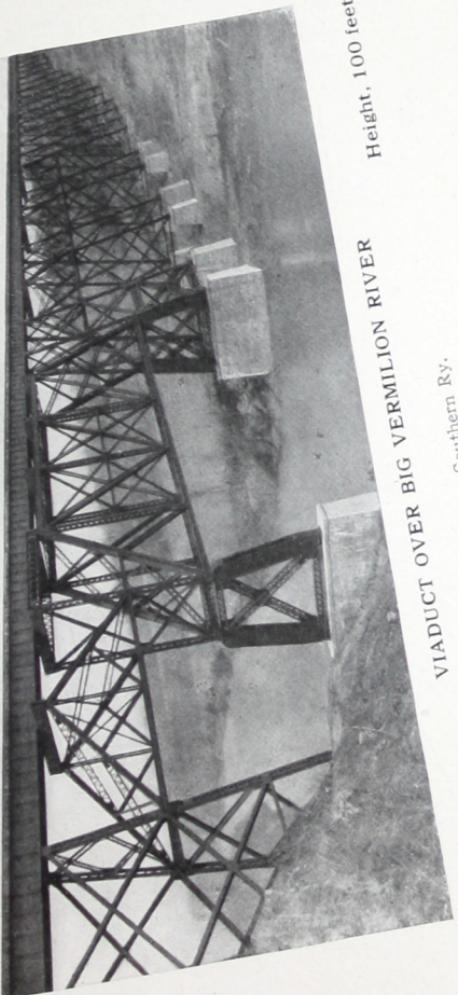


PORTABLE TIE PRESERVING RETORT

Diameter, 6 feet

Length, 130 feet

Union Pacific R. R. Co.



Height, 100 feet

VIADUCT OVER BIG VERMILION RIVER

Chicago Southern Ry.  
Length, 1600 feet

# Metal Structures

Chicago

Table showing Capacity in Gallons per Lineal Foot of Cylinders

| Diameter | Capacity | Diameter | Capacity |
|----------|----------|----------|----------|
| 1        | 5.9      | 51       | 15281    |
| 2        | 23.5     | 52       | 15887    |
| 3        | 52.9     | 53       | 16503    |
| 4        | 94       | 54       | 17132    |
| 5        | 146.9    | 55       | 17772    |
| 6        | 211.5    | 56       | 18425    |
| 7        | 287.9    | 57       | 19089    |
| 8        | 376      | 58       | 19764    |
| 9        | 475.9    | 59       | 20452    |
| 10       | 587.5    | 60       | 21151    |
| 11       | 711      | 61       | 21862    |
| 12       | 846      | 62       | 22584    |
| 13       | 993      | 63       | 23319    |
| 14       | 1152     | 64       | 24065    |
| 15       | 1322     | 65       | 24823    |
| 16       | 1504     | 66       | 25592    |
| 17       | 1698     | 67       | 26374    |
| 18       | 1904     | 68       | 27167    |
| 19       | 2121     | 69       | 27972    |
| 20       | 2350     | 70       | 28788    |
| 21       | 2591     | 71       | 29617    |
| 22       | 2844     | 72       | 30457    |
| 23       | 3108     | 73       | 31309    |
| 24       | 3384     | 74       | 32173    |
| 25       | 3672     | 75       | 33048    |
| 26       | 3972     | 76       | 33935    |
| 27       | 4283     | 77       | 34834    |
| 28       | 4606     | 78       | 35745    |
| 29       | 4941     | 79       | 36667    |
| 30       | 5288     | 80       | 37601    |
| 31       | 5646     | 81       | 38547    |
| 32       | 6016     | 82       | 39505    |
| 33       | 6398     | 83       | 40474    |
| 34       | 6792     | 84       | 41455    |
| 35       | 7197     | 85       | 42488    |
| 36       | 7614     | 86       | 43453    |
| 37       | 8043     | 87       | 44469    |
| 38       | 8484     | 88       | 45498    |
| 39       | 8936     | 89       | 46537    |
| 40       | 9400     | 90       | 47589    |
| 41       | 9876     | 91       | 48653    |
| 42       | 10364    | 92       | 49727    |
| 43       | 10863    | 93       | 50815    |
| 44       | 11374    | 94       | 51913    |
| 45       | 11897    | 95       | 53024    |
| 46       | 12432    | 96       | 54146    |
| 47       | 12978    | 97       | 55280    |
| 48       | 13536    | 98       | 56425    |
| 49       | 14106    | 99       | 57583    |
| 50       | 14688    | 100      | 58752    |



We have stock  
rule for finding  
Diagonal  
Square =

Dimensions of our Standard  
Tanks, for which we have  
Drawings and Tem-  
plates on hand

| Capacity<br>Gallons | Diameter<br>Feet<br>D | Height<br>Feet<br>h | Width of<br>Balcony<br>Inches |
|---------------------|-----------------------|---------------------|-------------------------------|
| 15000               | 12                    | 14                  | 18                            |
| 20000               | 13                    | 16                  | 18                            |
| 25000               | 14                    | 17                  | 24                            |
| 30000               | 15                    | 18                  | 24                            |
| 35000               | 16                    | 18                  | 24                            |
| 40000               | 17                    | 21                  | 24                            |
| 45000               | 18                    | 20                  | 24                            |
| 50000               | 18                    | 23                  | 24                            |
| 55000               | 19                    | 22                  | 24                            |
| 60000               | 19                    | 24                  | 24                            |
| 65000               | 20                    | 23                  | 24                            |
| 70000               | 20                    | 25                  | 27                            |
| 75000               | 21                    | 24                  | 27                            |
| 80000               | 21                    | 26                  | 27                            |
| 85000               | 21                    | 28                  | 27                            |
| 90000               | 22                    | 26                  | 27                            |
| 95000               | 22                    | 28                  | 27                            |
| 100000              | 22                    | 26                  | 27                            |
| 105000              | 23                    | 28                  | 30                            |
| 110000              | 23                    | 26                  | 30                            |
| 115000              | 24                    | 28                  | 30                            |
| 120000              | 24                    | 29                  | 30                            |
| 125000              | 24                    | 27                  | 30                            |
| 130000              | 25                    | 30                  | 30                            |
| 140000              | 25                    | 33                  | 36                            |
| 150000              | 26                    | 35                  | 36                            |
| 175000              | 28                    | 37                  | 36                            |
| 200000              | 30                    | 40                  | 36                            |
| 250000              | 32                    |                     |                               |
| 300000              |                       |                     |                               |

We have stock material for all sizes up to 100,000 gallons capacity.  
 Rule for finding size of base:  
 Diagonal =  $D + .23(H - h)$  } Closely  
 Square =  $.71 D + .162(H - h)$  } Approximate

# Metal Structures

Chicago

## Thicknesses and Weights of Cast Iron Pipe

| Nominal Inside Diam. Inches | 100 FT. HEAD<br>43 LBS. PRESSURE |            |        | 200 FT. HEAD<br>86 LBS. PRESSURE |            |        | 300 FT. HEAD<br>130 LBS. PRESSURE |            |        | Indicated Pressure at Nozzle<br>in Pounds | Best Fire Jet |  |  |
|-----------------------------|----------------------------------|------------|--------|----------------------------------|------------|--------|-----------------------------------|------------|--------|---|---------------|--|--|
|                             | Thickness<br>Inches              | Weight per |        | Thickness<br>Inches              | Weight per |        | Thickness<br>Inches               | Weight per |        |   |               |  |  |
|                             |                                  | Foot       | Length |                                  | Foot       | Length |                                   | Foot       | Length |   |               |  |  |
| 3                           | .39                              | 14.5       | 175    | .42                              | 16.2       | 194    | .45                               | 17.1       | 205    |   |               |  |  |
| 4                           | .42                              | 20.0       | 240    | .45                              | 21.7       | 260    | .48                               | 23.3       | 280    | 25  | 43 42         |  |  |
| 6                           | .44                              | 30.8       | 370    | .48                              | 33.3       | 400    | .51                               | 35.8       | 430    | 30  | 51 47         |  |  |
| 8                           | .46                              | 42.9       | 515    | .51                              | 47.5       | 570    | .56                               | 52.1       | 625    | 35  | 58 51         |  |  |
| 10                          | .50                              | 57.1       | 685    | .57                              | 63.8       | 765    | .62                               | 70.8       | 850    | 40  | 64 55         |  |  |
| 12                          | .54                              | 72.5       | 870    | .62                              | 82.1       | 985    | .68                               | 91.7       | 1100   | 45  | 69 58         |  |  |
| 14                          | .57                              | 89.6       | 1075   | .66                              | 102.5      | 1230   | .74                               | 116.7      | 1400   | 50  | 73 61         |  |  |
| 16                          | .60                              | 108.3      | 1300   | .70                              | 125.0      | 1500   | .80                               | 143.8      | 1725   | 55  | 76 64         |  |  |
| 18                          | .64                              | 129.2      | 1550   | .75                              | 150.0      | 1800   | .87                               | 175.0      | 2100   | 60  | 79 67         |  |  |
| 20                          | .67                              | 150.0      | 1800   | .80                              | 175.0      | 2100   | .92                               | 208.3      | 2500   | 65  | 82 70         |  |  |
| 24                          | .76                              | 204.2      | 2450   | .89                              | 233.3      | 2800   | 1.04                              | 279.2      | 3350   | 70  | 85 72         |  |  |
| 30                          | .88                              | 291.7      | 3500   | 1.03                             | 333.3      | 4000   | 1.20                              | 400.0      | 4800   | 75  | 87 74         |  |  |
| 36                          | .99                              | 391.7      | 4700   | 1.15                             | 454.2      | 5450   | 1.36                              | 545.8      | 6550   | 80  | 89 76         |  |  |
| 42                          | 1.10                             | 512.5      | 6150   | 1.28                             | 591.7      | 7100   | 1.54                              | 716.7      | 8600   | 85  | 91 78         |  |  |
| 48                          | 1.26                             | 666.7      | 8000   | 1.42                             | 750.0      | 9000   | 1.71                              | 908.3      | 10900  | 90  | 92 80         |  |  |
| 54                          | 1.35                             | 800.0      | 9600   | 1.55                             | 933.3      | 11200  | 1.90                              | 1141.7     | 13700  | 95  | 94 82         |  |  |
| 60                          | 1.39                             | 916.7      | 11000  | 1.67                             | 1104.2     | 13250  | 2.00                              | 1341.7     | 16100  | 100                                       | 96 83         |  |  |
| 72                          | 1.62                             | 1283.4     | 15400  | 1.95                             | 1545.8     | 18550  | 2.39                              | 1904.2     | 22850  |   |               |  |  |
| 84                          | 1.72                             | 1633.4     | 19600  | 2.22                             | 2104.2     | 25250  | ..                                | ..         | ..     |   |               |  |  |

Fire Stream I

This Table

Fire Stream I

Best Fire Jet

| Indicated Pressure at Nozzle<br>in Pounds | Height<br>Feet | Reach<br>Feet |
|---|----------------|---------------|
| 25  | 44             | 4             |
| 30  | 52             | 5             |
| 35  | 59             | 5             |
| 40  | 65             | 6             |
| 45  | 70             | 6             |
| 50  | 75             | 6             |
| 55  | 80             | 6             |
| 60  | 83             | 7             |
| 65  | 86             | 7             |
| 70  | 88             | 7             |
| 75  | 90             | 8             |
| 80  | 92             | 8             |
| 85  | 94             | 8             |
| 90  | 96             | 8             |
| 95  | 98             | 8             |
| 100                                       | 99             | 8             |

# Chicago Bridge & Iron Works

Iron Pipe

300 FT. HEAD  
LBS. PRESSURE

Weight per  
Foot | Length

## Fire Stream Data for 1-Inch Smooth Nozzle

This Table also serves for 1½-Inch Ring Nozzle

| Inches | Weight per<br>Foot | Length | Best Fire Jet                   |                | Gallons<br>per Minute | Height of Tower required to maintain<br>Fire Streams as shown in columns<br>2 and 3 through 2½-inch Rubber<br>Hose Lines mentioned |             |             |             |             |             |
|--------|--------------------|--------|---------------------------------|----------------|-----------------------|--|-------------|-------------|-------------|-------------|-------------|
|        |                    |        | Indicated<br>Pressure<br>Pounds | Height<br>Feet |                       | 50<br>Feet   | 100<br>Feet | 200<br>Feet | 300<br>Feet | 400<br>Feet | 500<br>Feet |
| 5      | 17.1               | 205    |                                 |                |                       | 67   | 71          | 82          | 94          | 106         | 117         |
| 8      | 23.3               | 280    | 25                              | 43             | 42                    | 147  | 77          | 84          | 99          | 113         | 126         |
| 1      | 35.8               | 430    | 30                              | 51             | 47                    | 161  | 92          | 102         | 117         | 131         | 140         |
| 5      | 52.1               | 625    | 35                              | 58             | 51                    | 174  | 106         | 115         | 133         | 151         | 163         |
| 2      | 70.8               | 850    | 40                              | 64             | 55                    | 186  | 119         | 129         | 149         | 170         | 191         |
| 8      | 91.7               | 1100   | 45                              | 69             | 58                    | 198  | 131         | 142         | 165         | 188         | 211         |
| 116.7  | 1400               | 50     | 73                              | 61             | 208                   | 145  | 158         | 181         | 207         | 232         | 257         |
| 143.8  | 1725               | 55     | 76                              | 64             | 218                   | 158  | 172         | 200         | 226         | 253         | 280         |
| 175.0  | 2100               | 60     | 79                              | 67             | 228                   | 172  | 186         | 216         | 246         | 273         | 303         |
| 208.3  | 2500               | 65     | 82                              | 70             | 237                   | 184  | 200         | 232         | 264         | 294         | 327         |
| 279.2  | 3350               | 70     | 85                              | 72             | 246                   | 197  | 216         | 248         | 282         | 317         | 349         |
| 400.0  | 4800               | 75     | 87                              | 74             | 255                   | 211  | 230         | 264         | 300         | 338         | 372         |
| 545.8  | 6500               | 80     | 89                              | 76             | 263                   | 226  | 243         | 282         | 319         | 359         | 398         |
| 716.7  | 8000               | 85     | 91                              | 78             | 274                   | 237  | 257         | 298         | 338         | 379         | 420         |
| 908.3  | 10900              | 90     | 92                              | 80             | 279                   | 250  | 271         | 314         | 359         | 400         | 444         |
| 1141.7 | 13700              | 95     | 94                              | 82             | 287                   | 264  | 287         | 331         | 377         | 420         | 467         |
| 1341.7 | 16100              | 100    | 96                              | 83             | 295                   | 264  | 287         | 331         | 377         | 420         | 467         |

## Fire Stream Data for 1½-Inch Smooth Nozzle

| Inches | Weight per<br>Foot | Length | Best Fire Jet                                |                | Gallons<br>per Minute | Height of Tower required to maintain<br>Fire Streams as shown in columns<br>2 and 3 through 2½-inch Rubber<br>Hose Lines mentioned |             |             |             |             |             |
|--------|--------------------|--------|--|----------------|-----------------------|--|-------------|-------------|-------------|-------------|-------------|
|        |                    |        | Indicated<br>Pressure<br>Pounds<br>at Nozzle | Height<br>Feet |                       | 50<br>Feet   | 100<br>Feet | 200<br>Feet | 300<br>Feet | 400<br>Feet | 500<br>Feet |
| 25     | 44                 | 44     |  |                |                       | 72   | 80          | 100         | 119         | 237         | 156         |
| 30     | 52                 | 50     | 206  |                |                       | 86   | 96          | 121         | 142         | 165         | 186         |
| 35     | 59                 | 54     | 222  |                |                       | 100  | 112         | 140         | 165         | 190         | 218         |
| 40     | 65                 | 59     | 238  |                |                       | 116  | 128         | 161         | 188         | 218         | 248         |
| 45     | 70                 | 63     | 252  |                |                       | 130  | 144         | 180         | 204         | 246         | 278         |
| 50     | 75                 | 66     | 266  |                |                       | 144  | 160         | 201         | 227         | 274         | 310         |
| 55     | 80                 | 69     | 279  |                |                       | 158  | 176         | 222         | 250         | 302         | 340         |
| 60     | 83                 | 72     | 291  |                |                       | 172  | 192         | 241         | 273         | 327         | 370         |
| 65     | 86                 | 75     | 303  |                |                       | 188  | 208         | 262         | 296         | 355         | 402         |
| 70     | 88                 | 77     | 314  |                |                       | 202  | 224         | 281         | 322         | 383         | 432         |
| 75     | 90                 | 79     | 325  |                |                       | 216  | 240         | 302         | 345         | 411         | 464         |
| 80     | 92                 | 81     | 336  |                |                       | 230  | 256         | 323         | 368         | 436         | 494         |
| 85     | 94                 | 83     | 346  |                |                       | 246  | 272         | 342         | 391         | 464         | 524         |
| 90     | 96                 | 85     | 356  |                |                       | 260  | 288         | 363         | 414         | 492         | 556         |
| 95     | 98                 | 87     | 366  |                |                       | 274  | 304         | 382         | 439         | 520         | 586         |
| 100    | 99                 | 89     | 376  |                |                       | 288  | 320         | 403         | 462         | 548         | 608         |

# Metal Structures

Chicago Br.

Table showing Properties of Lap Joints

| Thickness<br>of Plate | Number<br>Rows | 1/2-in. Rivets |       |       | 5/8-in. Rivets |       |       | 3/4-in. Rivets |       |       | 7/8-in. Rivets |       |       | Eff.  | Pitch | Sec.  | Eff.  | Pitch | Sec.  | Eff.  | Pitch | Sec.  |       |
|-----------------------|----------------|----------------|-------|-------|----------------|-------|-------|----------------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                       |                | 1              | 2     | 3     | 1              | 2     | 3     | 1              | 2     | 3     | 1              | 2     | 3     |       |       |       |       |       |       |       |       |       |       |
| 1/4                   | 1              | 393            | 150   | 098   | 490            | 188   | 122   | 500            | 225   | 125   | .....          | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 2              | 654            | 180   | 163   | 700            | 250   | 175   | 650            | 250   | 160   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
|                       | 3              | 739            | 239   | 185   | .....          | ..... | ..... | .....          | ..... | ..... | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
| 3/8                   | 1              | 349            | 150   | 098   | 435            | 188   | 122   | 500            | 225   | 140   | 500            | 263   | 140   | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 2              | 627            | 167   | 176   | 684            | 239   | 192   | 685            | 281   | 193   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
|                       | 3              | 714            | 220   | 200   | 733            | 281   | 206   | .....          | ..... | ..... | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
| 1/6                   | 1              | 314            | 150   | 098   | 392            | 188   | 122   | 471            | 225   | 147   | 500            | 263   | 156   | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 2              | 600            | 157   | 187   | 663            | 222   | 207   | 708            | 300   | 221   | 679            | 312   | 212   |       |       |       |       |       |       |       |       |       |       |
|                       | 3              | 692            | 204   | 216   | 746            | 296   | 233   | .....          | ..... | ..... | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
| 1/12                  | 1              | 286            | 150   | 098   | 356            | 188   | 122   | 428            | 225   | 207   | 500            | 263   | 172   | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 2              | 571            | 150   | 196   | 640            | 209   | 220   | 688            | 280   | 237   | 709            | 344   | 244   |       |       |       |       |       |       |       |       |       |       |
|                       | 3              | 673            | 191   | 230   | 727            | 276   | 250   | 745            | 344   | 256   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
| 3/16                  | 4              | 732            | 234   | 252   | 781            | 343   | 268   | .....          | ..... | ..... | .....          | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 1              | 262            | 150   | 098   | 327            | 188   | 123   | 393            | 225   | 147   | 458            | 263   | 172   |       |       |       |       |       |       |       |       |       |       |
|                       | 2              | 523            | 150   | 196   | 615            | 198   | 231   | 669            | 264   | 251   | 707            | 340   | 265   |       |       |       |       |       |       |       |       |       |       |
| 1/8                   | 3              | 654            | 180   | 245   | 710            | 259   | 266   | 752            | 353   | 282   | .....          | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 4              | 714            | 220   | 268   | 767            | 320   | 288   | .....          | ..... | ..... | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
|                       | 1              | 241            | 150   | 098   | 301            | 188   | 122   | 363            | 225   | 147   | 423            | 263   | 172   |       |       |       |       |       |       |       |       |       |       |
| 1/32                  | 2              | 482            | 150   | 196   | 603            | 188   | 245   | 651            | 251   | 264   | 689            | 322   | 280   | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 3              | 635            | 171   | 258   | 693            | 245   | 282   | 737            | 332   | 299   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
|                       | 4              | 700            | 207   | 284   | 705            | 302   | 286   | 785            | 406   | 319   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
| 1/64                  | 1              | 224            | 150   | 098   | 280            | 188   | 123   | 337            | 225   | 147   | 393            | 263   | 172   | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 2              | 449            | 150   | 196   | 561            | 188   | 245   | 634            | 239   | 277   | 671            | 303   | 294   |       |       |       |       |       |       |       |       |       |       |
|                       | 3              | 619            | 163   | 271   | 677            | 233   | 296   | 722            | 315   | 316   | 756            | 409   | 331   |       |       |       |       |       |       |       |       |       |       |
| 1/128                 | 4              | 683            | 197   | 299   | 738            | 285   | 323   | 776            | 390   | 340   | .....          | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 1              | 262            | 188   | 123   | 314            | 225   | 147   | 366            | 263   | 172   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
|                       | 2              | 524            | 188   | 246   | 618            | 229   | 290   | 659            | 292   | 309   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
| 1/256                 | 3              | 663            | 222   | 311   | 708            | 300   | 332   | 742            | 389   | 348   | .....          | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 4              | 725            | 271   | 340   | 764            | 370   | 358   | 787            | 469   | 369   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
|                       | 1              | 245            | 188   | 122   | 294            | 225   | 147   | 344            | 263   | 172   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
| 1/512                 | 2              | 491            | 188   | 245   | 589            | 225   | 294   | 648            | 280   | 322   | .....          | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 3              | 648            | 213   | 324   | 695            | 286   | 347   | 729            | 371   | 364   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
|                       | 4              | 711            | 259   | 355   | 752            | 353   | 376   | 783            | 461   | 391   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
| 1/1024                | 1              | 232            | 188   | 123   | 277            | 225   | 147   | 323            | 263   | 172   | .....          | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |       |
|                       | 2              | 465            | 188   | 247   | 554            | 225   | 275   | 624            | 307   | 270   | 335            | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
|                       | 3              | 633            | 205   | 336   | 682            | 275   | 362   | 718            | 355   | 381   | .....          | ..... | ..... |       |       |       |       |       |       |       |       |       |       |
| 1/2048                | 4              | 698            | 248   | 371   | 740            | 337   | 393   | 772            | 441   | 410   | 262            | 225   | 147   | 305   | 263   | 172   | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
|                       | 1              | .....          | ..... | ..... | .....          | ..... | ..... | 524            | 225   | 295   | 611            | 263   | 344   | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
|                       | 2              | .....          | ..... | ..... | .....          | ..... | ..... | 669            | 236   | 373   | 708            | 340   | 398   | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 1/4096                | 3              | .....          | ..... | ..... | .....          | ..... | ..... | 729            | 322   | 410   | 762            | 421   | 429   | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
|                       | 4              | .....          | ..... | ..... | .....          | ..... | ..... | 248            | 225   | 147   | 288            | 263   | 171   | 496   | 225   | 294   | 577   | 263   | 343   | ..... | ..... | ..... | ..... |
|                       | 5              | .....          | ..... | ..... | .....          | ..... | ..... | 657            | 255   | 390   | 695            | 327   | 413   | 719   | 311   | 427   | 752   | 402   | 447   | ..... | ..... | ..... | ..... |
| 1/8192                | 1              | .....          | ..... | ..... | .....          | ..... | ..... | 236            | 225   | 147   | 275            | 263   | 172   | 471   | 225   | 294   | 550   | 263   | 344   | ..... | ..... | ..... | ..... |
|                       | 2              | .....          | ..... | ..... | .....          | ..... | ..... | 645            | 247   | 403   | 685            | 316   | 428   | 708   | 300   | 443   | 742   | 389   | 464   | ..... | ..... | ..... | ..... |
|                       | 3              | .....          | ..... | ..... | .....          | ..... | ..... | 224            | 225   | 147   | 262            | 263   | 172   | 449   | 225   | 295   | 524   | 263   | 344   | ..... | ..... | ..... | ..... |
| 1/16384               | 4              | .....          | ..... | ..... | .....          | ..... | ..... | 634            | 239   | 416   | 671            | 303   | 440   | 698   | 290   | 458   | 731   | 371   | 480   | ..... | ..... | ..... | ..... |
|                       | 5              | .....          | ..... | ..... | .....          | ..... | ..... | 743            | 340   | 488   | 772            | 439   | 507   | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

| Table showing Properties of Lap Joints |                                | LAP JOINTS                 |                            | RIVETS                           |                            | Center P.                  |                            |
|--|--------------------------------|----------------------------|----------------------------|----------------------------------|----------------------------|----------------------------|----------------------------|
| Thickness of plate in inches.          | Thickness of rivets in inches. | Efficiency in per cent.    | Section in inches.         | Efficiency in per cent.          | Section in inches.         | Efficiency in per cent.    | Section in inches.         |
| 1/4 to 1/2 in.                         | 1/4 to 1/2 in.                 | 50 to 60                   | 1/2 to 1 in.               | 50 to 60                         | 1/2 to 1 in.               | 50 to 60                   | 1/2 to 1 in.               |
| Plates 1/4 to 1/4 in.                  | Rivets 1/4 to 1/4 in.          | Value of plate in tension. | Value of rivet in bearing. | Value of plate in tension.       | Value of rivet in bearing. | Value of plate in tension. | Value of rivet in bearing. |
| have been calculated.                  | in tension.                    | in bearing = 150.          | nominal diameter of rivet. | in bearing = 150.                | nominal diameter of rivet. | in bearing = 150.          | nominal diameter of rivet. |
| Efficiency is given in per cent.       | Pitch in inches.               | Center P.                  | Section in inches.         | Efficiency is given in per cent. | Pitch in inches.           | Center P.                  | Section in inches.         |

# Chicago Bridge & Iron Works

Table showing Properties of Lap Joints—Cont'd

Lap Joints

in. Rivets

Eff.

Pitch

Sec.

| Thickness<br>of Plate | Number<br>Rows | $\frac{1}{2}$ -in. Rivets |       | $\frac{5}{8}$ -in. Rivets |       | $\frac{3}{4}$ -in. Rivets |       | $\frac{7}{8}$ -in. Rivets |       |
|-----------------------|----------------|---------------------------|-------|---------------------------|-------|---------------------------|-------|---------------------------|-------|
|                       |                | Eff.                      | Pitch | Eff.                      | Pitch | Eff.                      | Pitch | Eff.                      | Pitch |
| $\frac{1}{2}$         | 1              | 214                       | 225   | 147                       | 250   | 263                       | 172   |                           |       |
| $\frac{1}{2}$         | 2              | 428                       | 225   | 294                       | 500   | 263                       | 344   |                           |       |
| $\frac{1}{2}$         | 3              | 623                       | 232   | 428                       | 662   | 297                       | 455   |                           |       |
| $\frac{1}{2}$         | 4              | 688                       | 280   | 473                       | 725   | 362                       | 498   |                           |       |
| $\frac{1}{2}$         | 5              | 734                       | 328   | 505                       | 766   | 428                       | 527   |                           |       |
| $\frac{3}{4}$         | 1              | 205                       | 225   | 147                       | 239   | 263                       | 172   |                           |       |
| $\frac{3}{4}$         | 2              | 410                       | 225   | 294                       | 478   | 263                       | 344   |                           |       |
| $\frac{3}{4}$         | 3              | 613                       | 226   | 441                       | 654   | 288                       | 470   |                           |       |
| $\frac{3}{4}$         | 4              | 678                       | 272   | 487                       | 715   | 351                       | 514   |                           |       |
| $\frac{3}{4}$         | 5              | 725                       | 318   | 521                       | 758   | 414                       | 545   |                           |       |
| $\frac{5}{8}$         | 1              | 196                       | 225   | 147                       | 229   | 263                       | 172   |                           |       |
| $\frac{5}{8}$         | 2              | 393                       | 225   | 295                       | 458   | 263                       | 344   |                           |       |
| $\frac{5}{8}$         | 3              | 589                       | 225   | 442                       | 644   | 280                       | 483   |                           |       |
| $\frac{5}{8}$         | 4              | 669                       | 264   | 502                       | 707   | 340                       | 530   |                           |       |
| $\frac{5}{8}$         | 5              | 716                       | 308   | 537                       | 751   | 400                       | 563   |                           |       |
| $\frac{7}{8}$         | 1              | 189                       | 225   | 148                       | 220   | 263                       | 172   |                           |       |
| $\frac{7}{8}$         | 2              | 377                       | 225   | 295                       | 440   | 263                       | 344   |                           |       |
| $\frac{7}{8}$         | 3              | 566                       | 225   | 442                       | 635   | 273                       | 496   |                           |       |
| $\frac{7}{8}$         | 4              | 660                       | 257   | 516                       | 698   | 331                       | 545   |                           |       |
| $\frac{7}{8}$         | 5              | 708                       | 300   | 553                       | 742   | 389                       | 580   |                           |       |
| $\frac{9}{16}$        | 1              | 181                       | 225   | 147                       | 211   | 263                       | 171   |                           |       |
| $\frac{9}{16}$        | 2              | 363                       | 225   | 295                       | 423   | 263                       | 344   |                           |       |
| $\frac{9}{16}$        | 3              | 544                       | 225   | 442                       | 624   | 267                       | 507   |                           |       |
| $\frac{9}{16}$        | 4              | 651                       | 250   | 529                       | 689   | 322                       | 560   |                           |       |
| $\frac{9}{16}$        | 5              | 700                       | 291   | 569                       | 734   | 378                       | 596   |                           |       |
| $\frac{11}{16}$       | 1              | 174                       | 225   | 147                       | 204   | 263                       | 172   |                           |       |
| $\frac{11}{16}$       | 2              | 349                       | 225   | 294                       | 407   | 263                       | 344   |                           |       |
| $\frac{11}{16}$       | 3              | 523                       | 225   | 441                       | 611   | 263                       | 516   |                           |       |
| $\frac{11}{16}$       | 4              | 642                       | 245   | 542                       | 681   | 314                       | 575   |                           |       |
| $\frac{11}{16}$       | 5              | 692                       | 284   | 584                       | 728   | 367                       | 614   |                           |       |
| $\frac{13}{16}$       | 1              | 168                       | 225   | 147                       | 196   | 263                       | 172   |                           |       |
| $\frac{13}{16}$       | 2              | 337                       | 225   | 295                       | 393   | 263                       | 344   |                           |       |
| $\frac{13}{16}$       | 3              | 505                       | 225   | 442                       | 589   | 263                       | 515   |                           |       |
| $\frac{13}{16}$       | 4              | 634                       | 239   | 555                       | 674   | 306                       | 590   |                           |       |
| $\frac{13}{16}$       | 5              | 684                       | 277   | 599                       | 720   | 358                       | 630   |                           |       |

Plates  $\frac{3}{4}$  to  $\frac{7}{8}$  inches thick; rivets,  $\frac{1}{2}$ ,  $\frac{5}{8}$ ,  $\frac{3}{4}$ ,  $\frac{7}{8}$ . These tables have been calculated basing on the following assumptions: If value of plate in tension=100, value of rivet in shear=75, value of rivet in bearing=150. Diameter of rivet hole  $\frac{1}{8}$  greater than nominal diameter of rivet.

Thickness of plate and number of rows of rivets driven given in left column. Under each rivet size are given efficiency of joint, pitch of rivets and effective section.

Efficiency is given in scale of 1000.

Pitch in inches.—Decimal point, two figures from the right.

Section in inches.—Decimal point, three figures from the right.

## LAPS ARE MADE AS FOLLOWS.

| Rivets        | Center Rivet to Edge Plate | Spacing of Rivet Lines |
|---------------|----------------------------|------------------------|
| $\frac{1}{2}$ | 1                          | $1\frac{1}{2}$         |
| $\frac{5}{8}$ | $1\frac{1}{8}$             | $1\frac{3}{4}$         |
| $\frac{3}{4}$ | $1\frac{5}{8}$             | 2                      |
| $\frac{7}{8}$ | $1\frac{1}{2}$             | $2\frac{1}{2}$         |

# Metal Structures

Chicago

Table Giving Properties of Double Butt  
Strapped Joints

Table Giving  
Properties of Double Butt  
Strapped Joints

| Thickness<br>of Plate | 3/4-inch Rivets |       |      |                 |      |       | 1/2-inch Rivets |                 |                |       |      |       | 1-inch Rivets |       |      |       |      |       | 5/8-inch Rivets |       |      |       |      |  |
|-----------------------|-----------------|-------|------|-----------------|------|-------|-----------------|-----------------|----------------|-------|------|-------|---------------|-------|------|-------|------|-------|-----------------|-------|------|-------|------|--|
|                       | Eff.            | Pitch | Sec. | Strap           | Eff. | Pitch | Sec.            | Strap           | Eff.           | Pitch | Sec. | Strap | Eff.          | Pitch | Sec. | Strap | Eff. | Pitch | Sec.            | Strap | Eff. | Pitch | Sec. |  |
| 1                     | 1 500           | 225   | 250  | 5 5/8" x 5/16"  | 496  | 263   | 248             | 6 1/2" x 5/16"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 2                     | 2 720           | 313   | 360  | 9 5/8" x 5/16"  | 724  | 362   | 362             | 11 1/2" x 5/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 3                     | 3 794           | 425   | 397  | 14 1/8" x 5/16" | 797  | 494   | 399             | 16 1/2" x 5/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 4                     | 4 837           | 538   | 419  | 22 1/8" x 5/16" | 840  | 625   | 420             | 25 1/4" x 5/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 1 500           | 225   | 266  | 5 5/8" x 3/8"   | 500  | 263   | 266             | 6 1/2" x 3/8"   | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 1 7                   | 2 720           | 313   | 383  | 9 5/8" x 3/8"   | 724  | 362   | 385             | 11 1/2" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 3 2                   | 3 794           | 425   | 422  | 14 1/8" x 3/8"  | 797  | 494   | 423             | 16 1/2" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 4                     | 4 837           | 538   | 445  | 22 1/8" x 3/8"  | 840  | 625   | 445             | 25 1/4" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 1 500           | 225   | 281  | 5 5/8" x 3/8"   | 500  | 263   | 281             | 6 1/2" x 3/8"   | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 9                     | 2 720           | 313   | 405  | 9 5/8" x 3/8"   | 724  | 362   | 407             | 11 1/2" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 1 6                   | 3 794           | 425   | 447  | 14 1/8" x 3/8"  | 797  | 494   | 447             | 16 1/2" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 4                     | 4 837           | 538   | 471  | 22 1/8" x 3/8"  | 840  | 625   | 473             | 25 1/4" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 1 496           | 225   | 295  | 5 5/8" x 3/8"   | 500  | 263   | 295             | 6 1/2" x 3/8"   | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 9                     | 2 718           | 311   | 426  | 9 5/8" x 3/8"   | 724  | 362   | 430             | 11 1/2" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 3 2                   | 3 793           | 422   | 471  | 14 1/8" x 3/8"  | 797  | 494   | 473             | 16 1/2" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 4                     | 4 837           | 533   | 497  | 21 1/8" x 3/8"  | 840  | 625   | 500             | 25 1/4" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 1 471           | 225   | 295  | 5 5/8" x 3/8"   | 500  | 263   | 312             | 6 1/2" x 3/8"   | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 5                     | 2 707           | 299   | 442  | 9 5/8" x 3/8"   | 724  | 362   | 453             | 11 1/2" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 3                     | 3 784           | 405   | 490  | 14 1/8" x 3/8"  | 797  | 494   | 498             | 16 1/2" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 4                     | 4 829           | 511   | 518  | 21 1/8" x 3/8"  | 840  | 625   | 525             | 25 1/4" x 3/8"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 1 449           | 225   | 295  | 5 5/8" x 1/2"   | 500  | 263   | 328             | 6 1/2" x 1/2"   | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 2 1                   | 2 698           | 289   | 458  | 9 5/8" x 1/2"   | 724  | 362   | 475             | 11 1/2" x 1/2"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 3 2                   | 3 764           | 371   | 501  | 13 1/8" x 1/2"  | 797  | 494   | 523             | 16 1/2" x 1/2"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 5                     | 5 852           | 592   | 559  | 29 1/8" x 1/2"  | 840  | 625   | 552             | 25 1/4" x 1/2"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 1 428           | 225   | 295  | 5 5/8" x 7/16"  | 500  | 263   | 344             | 6 1/2" x 7/16"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 2                     | 2 688           | 280   | 473  | 9 5/8" x 7/16"  | 724  | 362   | 498             | 11 1/2" x 7/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 1 1                   | 3 767           | 376   | 372  | 13 1/8" x 7/16" | 797  | 494   | 548             | 16 1/2" x 7/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 1 6                   | 4 815           | 473   | 560  | 19 1/8" x 7/16" | 840  | 625   | 578             | 25 1/4" x 7/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 5                     | 5 846           | 568   | 582  | 28 1/8" x 7/16" | 840  | 625   | 582             | 25 1/4" x 7/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 1 409           | 225   | 295  | 5 5/8" x 7/16"  | 478  | 263   | 343             | 6 1/2" x 7/16"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 2                     | 2 678           | 272   | 487  | 9 5/8" x 7/16"  | 715  | 351   | 514             | 11 1/2" x 7/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 3 2                   | 3 759           | 364   | 546  | 13 1/8" x 7/16" | 790  | 476   | 568             | 16 1/2" x 7/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 4                     | 4 808           | 456   | 581  | 19 1/8" x 7/16" | 834  | 602   | 600             | 24 1/2" x 7/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 5                     | 5 840           | 548   | 604  | 27 1/8" x 7/16" | 840  | 602   | 600             | 24 1/2" x 7/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 1 392           | 225   | 295  | 5 5/8" x 7/16"  | 458  | 263   | 344             | 6 1/2" x 7/16"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 3                     | 2 668           | 264   | 501  | 9 5/8" x 7/16"  | 706  | 341   | 530             | 11 1/2" x 7/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 4                     | 3 751           | 352   | 564  | 13 1/8" x 7/16" | 783  | 461   | 587             | 16 1/2" x 7/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 5                     | 4 801           | 440   | 601  | 19 1/8" x 7/16" | 828  | 581   | 621             | 24 1/2" x 7/16" | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 5 834           | 529   | 626  | 26 1/8" x 7/16" | 857  | 701   | 643             | 34 1/2" x 3/4"  | -              | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 1               | -     | -    | -               | -    | 440   | 263             | 344             | 6 1/2" x 3/4"  | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 2                     | 2               | -     | -    | -               | -    | 698   | 331             | 545             | 11 1/2" x 3/4" | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 3 2                   | 3               | -     | -    | -               | -    | 776   | 446             | 606             | 16 1/2" x 3/4" | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 4                     | 4               | -     | -    | -               | -    | 819   | 552             | 640             | 23 1/2" x 3/4" | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 5                     | 5               | -     | -    | -               | -    | 852   | 677             | 666             | 33 1/2" x 3/4" | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 1               | -     | -    | -               | -    | 423   | 263             | 344             | 6 1/2" x 3/4"  | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 1 3                   | 2               | -     | -    | -               | -    | 690   | 322             | 561             | 11 1/2" x 3/4" | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 1 6                   | 4               | -     | -    | -               | -    | 769   | 433             | 625             | 16 1/2" x 3/4" | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
| 5                     | 5               | -     | -    | -               | -    | 816   | 544             | 663             | 23 1/2" x 3/4" | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |
|                       | 1               | -     | -    | -               | -    | 847   | 655             | 688             | 32 1/2" x 3/4" | -     | -    | -     | -             | -     | -    | -     | -    | -     | -               | -     | -    | -     | -    |  |

# Chicago Bridge & Iron Works

Table Giving Properties of Double Butt  
Strapped Joints—Continued

table Butt

1-inch Rivets

| Pitch<br>Sec. | Stamp | of Plate | 3/4-inch Rivets |       |      | 7/8-inch Rivets   |       |      | 1-inch Rivets |                   |      |
|---------------|-------|----------|-----------------|-------|------|-------------------|-------|------|---------------|-------------------|------|
|               |       |          | Eff.            | Pitch | Sec. | Eff.              | Pitch | Sec. | Eff.          | Pitch             | Sec. |
| 1             |       |          | 407             | 263   | 344  | 6 1/2 "x 1/2 "    | 466   | 300  | 393           | 7 1/2 "x 1/2 "    |      |
| 2             |       |          | 682             | 314   | 576  | 11 1/2 "x 1/2 "   | 713   | 392  | 602           | 13 1/2 "x 1/2 "   |      |
| 4             |       |          | 762             | 421   | 646  | 16 1/2 "x 1/2 "   | 788   | 532  | 665           | 19 1/2 "x 1/2 "   |      |
| 5             |       |          | 811             | 528   | 684  | 22 1/4 "x 1/2 "   | 832   | 671  | 702           | 27 3/4 "x 11/16 " |      |
|               |       |          | 842             | 635   | 711  | 32 1/2 "x 11/16 " |       |      |               |                   |      |
| 1             |       |          | 393             | 263   | 344  | 6 1/2 "x 1/2 "    | 449   | 300  | 393           | 7 1/2 "x 1/2 "    |      |
| 2             |       |          | 674             | 307   | 590  | 11 1/2 "x 1/2 "   | 705   | 382  | 617           | 13 1/2 "x 1/2 "   |      |
| 3             |       |          | 756             | 409   | 662  | 16 1/2 "x 1/2 "   | 782   | 516  | 684           | 19 1/2 "x 1/2 "   |      |
| 4             |       |          | 805             | 512   | 704  | 22 1/4 "x 1/2 "   | 827   | 651  | 724           | 27 1/2 "x 1/2 "   |      |
| 5             |       |          | 837             | 615   | 732  | 31 1/2 "x 1/2 "   |       |      |               |                   |      |
| 1             |       |          | 379             | 263   | 344  | 6 1/2 "x 1/2 "    | 433   | 300  | 393           | 7 1/2 "x 1/2 "    |      |
| 2             |       |          | 665             | 299   | 603  | 11 1/2 "x 1/2 "   | 700   | 372  | 634           | 13 1/2 "x 1/2 "   |      |
| 3             |       |          | 750             | 400   | 680  | 16 1/2 "x 1/2 "   | 776   | 503  | 703           | 19 1/2 "x 1/2 "   |      |
| 4             |       |          | 800             | 498   | 725  | 21 1/2 "x 1/2 "   | 822   | 633  | 746           | 27 1/2 "x 1/2 "   |      |
| 5             |       |          | 833             | 598   | 755  | 30 1/2 "x 1/2 "   |       |      |               |                   |      |
| 1             |       |          | 367             | 263   | 344  | 6 1/2 "x 1/2 "    | 419   | 300  | 393           | 7 1/2 "x 1/2 "    |      |
| 2             |       |          | 657             | 292   | 616  | 11 1/2 "x 1/2 "   | 690   | 362  | 647           | 13 1/2 "x 1/2 "   |      |
| 3             |       |          | 743             | 389   | 696  | 16 1/2 "x 1/2 "   | 769   | 488  | 721           | 19 1/2 "x 1/2 "   |      |
| 4             |       |          | 794             | 485   | 744  | 21 1/2 "x 1/2 "   | 817   | 614  | 766           | 26 1/4 "x 1/2 "   |      |
| 5             |       |          | 829             | 587   | 777  | 30 1/2 "x 1/2 "   |       |      |               |                   |      |
| 1             |       |          | 355             | 263   | 344  | 6 1/2 "x 1/2 "    | 408   | 300  | 393           | 7 1/2 "x 1/2 "    |      |
| 2             |       |          | 650             | 286   | 630  | 11 1/2 "x 1/2 "   | 684   | 356  | 663           | 13 1/2 "x 1/2 "   |      |
| 3             |       |          | 737             | 380   | 714  | 16 1/2 "x 1/2 "   | 764   | 477  | 740           | 19 1/2 "x 1/2 "   |      |
| 4             |       |          | 789             | 473   | 764  | 21 1/2 "x 1/2 "   | 813   | 599  | 785           | 25 1/2 "x 1/2 "   |      |
| 5             |       |          | 823             | 565   | 797  | 29 1/2 "x 1/2 "   |       |      |               |                   |      |
| 1             |       |          | 344             | 263   | 344  | 6 1/2 "x 1/2 "    | 393   | 300  | 393           | 7 1/2 "x 1/2 "    |      |
| 2             |       |          | 644             | 280   | 644  | 11 1/2 "x 1/2 "   | 677   | 348  | 677           | 13 1/2 "x 1/2 "   |      |
| 3             |       |          | 730             | 371   | 730  | 16 1/2 "x 1/2 "   | 759   | 466  | 759           | 19 1/2 "x 1/2 "   |      |
| 4             |       |          | 783             | 461   | 783  | 21 1/2 "x 1/2 "   | 807   | 584  | 807           | 25 1/2 "x 1/2 "   |      |
| 5             |       |          | 818             | 551   | 818  | 28 1/2 "x 1/2 "   | 840   | 701  | 840           | 35 1/2 "x 1/2 "   |      |
| 6             |       |          | 844             | 641   | 844  | 39 "x 1/2 "       |       |      |               |                   |      |
| 1             |       |          | 333             | 263   | 344  | 6 1/2 "x 1/2 "    | 381   | 300  | 393           | 7 1/2 "x 1/2 "    |      |
| 2             |       |          | 634             | 275   | 654  | 11 1/2 "x 1/2 "   | 670   | 341  | 691           | 13 1/2 "x 1/2 "   |      |
| 3             |       |          | 724             | 362   | 749  | 16 1/2 "x 1/2 "   | 753   | 455  | 777           | 19 1/2 "x 1/2 "   |      |
| 4             |       |          | 777             | 450   | 801  | 21 1/2 "x 1/2 "   | 803   | 570  | 828           | 25 1/2 "x 1/2 "   |      |
| 5             |       |          | 809             | 534   | 834  | 28 1/2 "x 1/2 "   | 835   | 683  | 861           | 35 1/2 "x 1/2 "   |      |
| 6             |       |          | 840             | 625   | 866  | 37 1/2 "x 1/2 "   |       |      |               |                   |      |
| 1             |       |          | 323             | 263   | 344  | 6 1/2 "x 1/2 "    | 370   | 300  | 393           | 7 1/2 "x 1/2 "    |      |
| 2             |       |          | 630             | 270   | 670  | 11 1/2 "x 1/2 "   | 663   | 334  | 704           | 13 1/2 "x 1/2 "   |      |
| 3             |       |          | 718             | 355   | 763  | 16 1/2 "x 1/2 "   | 747   | 445  | 794           | 19 1/2 "x 1/2 "   |      |
| 4             |       |          | 773             | 440   | 821  | 21 1/2 "x 1/2 "   | 800   | 556  | 850           | 25 1/2 "x 1/2 "   |      |
| 5             |       |          | 810             | 525   | 861  | 27 1/2 "x 1/2 "   | 831   | 667  | 883           | 34 1/2 "x 1/2 "   |      |
| 6             |       |          | 836             | 609   | 888  | 36 1/2 "x 1/2 "   |       |      |               |                   |      |
| 1             |       |          | 315             | 263   | 344  | 6 1/2 "x 1/2 "    | 360   | 300  | 393           | 7 1/2 "x 1/2 "    |      |
| 2             |       |          | 622             | 265   | 680  | 11 1/2 "x 1/2 "   | 657   | 328  | 719           | 13 1/2 "x 1/2 "   |      |
| 3             |       |          | 712             | 347   | 779  | 16 1/2 "x 1/2 "   | 742   | 436  | 812           | 19 1/2 "x 1/2 "   |      |
| 4             |       |          | 767             | 430   | 839  | 21 1/2 "x 1/2 "   | 793   | 544  | 868           | 25 1/2 "x 1/2 "   |      |
| 5             |       |          | 807             | 518   | 883  | 27 1/2 "x 1/2 "   | 828   | 651  | 905           | 33 1/2 "x 1/2 "   |      |
| 6             |       |          | 832             | 595   | 910  | 36 1/2 "x 1/2 "   |       |      |               |                   |      |

1-inch Rivets

# Metal Structures



Chicago

Table Giving Properties of Double Butt  
Strapped Joints—Continued

| Thickness<br>of Plate | 3/4-inch Rivets |       |      | 5/8-inch Rivets |         |       | 1-inch Rivets                         |       |     |
|-----------------------|-----------------|-------|------|-----------------|---------|-------|---------------------------------------|-------|-----|
|                       | Eff.            | Pitch | Sec. | Strap           | Eff.    | Pitch | Sec.                                  | Strap |     |
|                       |                 |       |      |                 |         |       |                                       |       |     |
| $1\frac{1}{8}$        | 1               |       |      |                 | 305 262 | 344   | $6\frac{1}{4} \times \frac{5}{8}$ "   | 346   | 300 |
|                       | 2               |       |      |                 | 610 262 | 688   | $11\frac{1}{2} \times \frac{5}{8}$ "  | 650   | 322 |
|                       | 3               |       |      |                 | 708 341 | 797   | $16\frac{1}{2} \times \frac{5}{8}$ "  | 736   | 427 |
|                       | 4               |       |      |                 | 762 421 | 857   | $21\frac{1}{2} \times \frac{5}{8}$ "  | 788   | 531 |
|                       | 5               |       |      |                 | 800 501 | 900   | $26\frac{1}{2} \times \frac{5}{8}$ "  | 823   | 636 |
|                       | 6               |       |      |                 | 828 581 | 932   | $36\frac{1}{2} \times \frac{5}{8}$ "  | 932   | 712 |
| $1\frac{1}{3}$        | 1               |       |      |                 | 297 263 | 344   | $6\frac{1}{4} \times \frac{1}{2}$ "   | 339   | 300 |
|                       | 2               |       |      |                 | 594 263 | 688   | $11\frac{1}{2} \times \frac{1}{2}$ "  | 644   | 316 |
|                       | 3               |       |      |                 | 700 334 | 810   | $16\frac{1}{2} \times \frac{1}{2}$ "  | 731   | 418 |
|                       | 4               |       |      |                 | 757 412 | 875   | $21\frac{1}{2} \times \frac{1}{2}$ "  | 784   | 520 |
|                       | 5               |       |      |                 | 796 491 | 920   | $26\frac{1}{2} \times \frac{1}{2}$ "  | 819   | 621 |
|                       | 6               |       |      |                 | 824 568 | 953   | $35\frac{1}{4} \times \frac{1}{2}$ "  | 947   | 707 |
| $1\frac{3}{16}$       | 1               |       |      |                 | 290 263 | 344   | $6\frac{1}{4} \times \frac{1}{8}$ "   | 331   | 300 |
|                       | 2               |       |      |                 | 580 263 | 688   | $11\frac{1}{2} \times \frac{1}{8}$ "  | 638   | 311 |
|                       | 3               |       |      |                 | 694 327 | 824   | $16\frac{1}{2} \times \frac{1}{8}$ "  | 726   | 410 |
|                       | 4               |       |      |                 | 752 404 | 893   | $21\frac{1}{2} \times \frac{1}{8}$ "  | 779   | 509 |
|                       | 5               |       |      |                 | 792 480 | 941   | $26\frac{1}{2} \times \frac{1}{8}$ "  | 815   | 609 |
|                       | 6               |       |      |                 | 820 556 | 974   | $34 \times \frac{1}{8}$ "             | 841   | 707 |
| $1\frac{7}{32}$       | 1               |       |      |                 | 842 632 | 1000  | $45\frac{1}{2} \times \frac{1}{8}$ "  | ...   | ... |
|                       | 2               |       |      |                 | 282 262 | 344   | $6\frac{1}{4} \times \frac{1}{16}$ "  | 322   | 300 |
|                       | 3               |       |      |                 | 564 262 | 688   | $11\frac{1}{2} \times \frac{1}{16}$ " | 632   | 306 |
|                       | 4               |       |      |                 | 690 322 | 842   | $16\frac{1}{2} \times \frac{1}{16}$ " | 721   | 403 |
|                       | 5               |       |      |                 | 747 396 | 913   | $21\frac{1}{2} \times \frac{1}{16}$ " | 775   | 500 |
|                       | 6               |       |      |                 | 787 470 | 959   | $26\frac{1}{2} \times \frac{1}{16}$ " | 811   | 596 |
| $1\frac{1}{4}$        | 1               |       |      |                 | 816 544 | 993   | $34 \times \frac{1}{16}$ "            | 838   | 693 |
|                       | 2               |       |      |                 | 838 618 | 1021  | $44 \times \frac{1}{16}$ "            | 1021  | 44  |
|                       | 3               |       |      |                 | 275 262 | 344   | $6\frac{1}{2} \times \frac{1}{32}$ "  | 314   | 300 |
|                       | 4               |       |      |                 | 550 262 | 688   | $11\frac{1}{2} \times \frac{1}{32}$ " | 628   | 300 |
|                       | 5               |       |      |                 | 684 317 | 855   | $16\frac{1}{2} \times \frac{1}{32}$ " | 714   | 394 |
|                       | 6               |       |      |                 | 748 389 | 935   | $21\frac{1}{2} \times \frac{1}{32}$ " | 770   | 488 |
| $1\frac{1}{2}$        | 7               |       |      |                 | 783 461 | 979   | $26\frac{1}{2} \times \frac{1}{32}$ " | 807   | 583 |
|                       |                 |       |      |                 | 812 533 | 1015  | $34 \times \frac{1}{32}$ "            | 831   | 677 |
|                       |                 |       |      |                 | 835 605 | 1044  | $42\frac{1}{2} \times \frac{1}{32}$ " | ...   | ... |

Detail List  
This List is publ  
information by cor  
Locati

ALABAMA

Huntsville—Lowe M  
Greensboro—Light  
Huntsville—Dallas  
Carbon Hill  
Whistler—Mobile &

ARIZONA

Hackberry, U. S. A  
Fort Defiance, U. S.

ARKANSAS

Siloam Springs  
Jonesboro  
Marianna  
Rogers  
Brinkley  
Baring Cross—St. L  
Augusta  
Hamburg—Crosses  
Little Rock—Tract  
Helena—Premier C  
Evan—Fourche River  
Little Rock—State  
Arkansas City  
Thornton—Stout G

CALIFORNIA

Porterville  
O�ico—Water Co.  
Stockton—Water Co.  
Shandon—Am. Sm

COLORADO

Littleton  
New Windsor  
Lafayette

CONNECTICUT

Bridgeport—Locom  
Bridgeport—Eaton  
Ham Co.  
New Haven—Union  
Bridgeport—Union  
Bridgeport—Bullan

# *Chicago Bridge & Iron Works*

**Detail List of Elevated Tanks and Stand  
Pipes Built by Us**

This List is published to aid prospective purchasers who can get information by corresponding with City Officials or Owners.

| 1-inch Rivets |          |      |      |
|---------------|----------|------|------|
| E.F.          | Pitch    | Sec. | Span |
| 46 300        | 393 7½   |      |      |
| 50 322        | 731 11½  |      |      |
| 36 427        | 828 19½  |      |      |
| 88 531        | 886 25½  |      |      |
| 23 636        | 926 33½  |      |      |
| 39 300        | 393 7½   |      |      |
| 44 316        | 745 13½  |      |      |
| 31 418        | 845 19½  |      |      |
| 84 520        | 906 25½  |      |      |
| 19 621        | 947 32½  |      |      |
| 31 300        | 393 7½   |      |      |
| 38 311        | 758 13½  |      |      |
| 26 410        | 862 19½  |      |      |
| 79 509        | 925 25½  |      |      |
| 15 609        | 968 31½  |      |      |
| 41 707        | 992 42½  |      |      |
| 22 300        | 393 7½   |      |      |
| 32 306        | 770 13½  |      |      |
| 21 403        | 879 19½  |      |      |
| 75 500        | 945 25½  |      |      |
| 11 596        | 988 31½  |      |      |
| 38 693        | 1021 42½ |      |      |
| 14 300        | 393 7½   |      |      |
| 28 300        | 786 13½  |      |      |
| 14 394        | 893 19½  |      |      |
| 70 488        | 963 25½  |      |      |
| 7 583         | 1009 31½ |      |      |
| 31 677        | 1039 41½ |      |      |

| Location                               | Water Towers   |         | Stand Pipes |         |
|--|----------------|---------|-------------|---------|
|  | Cap'y<br>Gals. | Ht. Ft. | Dia. Ft.    | Ht. Ft. |
| <b>ALABAMA</b>                         |                |         |             |         |
| Huntsville—Lowe Manufacturing Co.      | 30,000         | 90'6"   |             |         |
| Greensboro—Light & Water Co.           | 80,000         | 134'6"  |             |         |
| Huntsville—Dallas Mfg. Co.             | 75,000         | 135     |             |         |
| Carbon Hill                            | 80,000         | 60      |             |         |
| Whistler—Mobile & Ohio R. R. Co.       | 100,000        | 89      |             |         |
| <b>ARIZONA</b>                         |                |         |             |         |
| Hackberry, U. S. A.                    |                |         | 15          | 15      |
| Fort Defiance, U. S. A.                |                |         | 12          | 12      |
| <b>ARKANSAS</b>                        |                |         |             |         |
| Siloam Springs                         | 110,000        | 85      |             |         |
| Jonesboro                              | 60,000         | 131'6"  | 15          | 100     |
| Marianna                               | 70,000         | 101     |             |         |
| Rogers                                 | 50,000         | 100     |             |         |
| Brinkley                               |                |         | 25          | 50      |
| Baring Cross—St. L. I. M. & S. Ry.     |                |         |             |         |
| Augusta                                | 40,000         | 100     |             |         |
| Hamburg—Crossett Lumber Co.            | 45,000         | 100     |             |         |
| Little Rock—Traction Co.               | 63,000         | 66'6"   |             |         |
| Helena—Premier Cotton Mills            | 5,000          | 65      |             |         |
| Esau—Fourche River Lumber Co.          | 30,000         | 100     |             |         |
| Little Rock—State Asylum               | 100,000        | 159     |             |         |
| Arkansas City                          | 40,000         | 99      |             |         |
| Thornton—Stout Greer Lum. Co.          | 50,000         | 104     |             |         |
| <b>CALIFORNIA</b>                      |                |         |             |         |
| Porterville                            | 75,000         | 133     |             |         |
| Chico—Water Co.                        | 100,000        | 119     |             |         |
| Stockton—Water Co.                     | 200,000        | 110     |             |         |
| Sheridan—Am. Smelt. & Refin. Co.       | 50,000         | 100     |             |         |
| <b>COLORADO</b>                        |                |         |             |         |
| Littleton                              |                |         | 15          | 75      |
| New Windsor                            | 50,000         | 80      |             |         |
| Lafayette                              |                |         | 12          | 60      |
| <b>CONNECTICUT</b>                     |                |         |             |         |
| Bridgeport—Locomobile Co. of Am.       | 50,000         | 103     |             |         |
| Bridgeport—Eaton, Cole & Burnham Co.   | 100,000        | 139     |             |         |
| New Haven—Strouse Adler & Co.          | 40,000         | 110'6"  |             |         |
| Bridgeport—Union Metallic Cartidge Co. | 100,000        | 128     |             |         |
| Bridgeport—Bullard Mach. Co.           | 50,000         | 129     |             |         |

# Metal Structures

Chicago

| Location  | Water Towers   |         | Stand Pipes |         |
|---|----------------|---------|-------------|---------|
|   | Cap'y<br>Gals. | Ht. Ft. | Dia. Ft     | Ht. Ft. |
| <b>FLORIDA</b>  |                |         |             |         |
| Monticello.....                                       | 40,000         | 100     |             |         |
| Live Oak.....   | 45,000         | 103     |             |         |
| Pensacola.....  | 100,000        | 135     |             |         |
| Pensacola—B. H. Knowles.....                          | 20,000         | 78'6"   |             |         |
| Perry.....  | 80,000         | 114     |             |         |
| Appalachicola.....                                    | 100,000        | 110     |             |         |
| <b>GEORGIA</b>  |                |         |             |         |
| Lytle—Camp George H. Thomas.....                      | 30,000         | 55'6"   |             |         |
| Savannah—Savannah Lum. Co.....                        | 30,000         | 90'6"   |             |         |
| Fitzgerald—Atlantic & Birmingham Construction Co..... | 100,000        | 128     |             |         |
| <b>IDAHO</b>  |                |         |             |         |
| Shoshone—Light & Water Co.....                        | 50,000         | 85'6"   |             |         |
| Downey—Oregon Short Lines.....                        | 65,000         | 32'5"   |             |         |
| <b>ILLINOIS</b>                                       |                |         |             |         |
| East Dubuque.....                                     |                |         | 12          | 85      |
| Carmi.....  |                |         | 12          | 116     |
| West Dundee.....                                      | 94,000         | 70      |             |         |
| Rock Island.....                                      |                |         | 16          | 80      |
| Gibson City (brick tower).....                        | 35,000         | 100     |             |         |
| Earliville.....                                       |                |         | 12          | 100     |
| Paris.....  | 106,000        | 141     |             |         |
| West Chicago.....                                     |                |         | 16          | 125     |
| Geneva.....   |                |         | 16          | 100     |
| Urbana—University of Illinois.....                    |                |         | 4           | 60      |
| Buda.....   |                |         | 10          | 100     |
| Geneseo—Rock Island System.....                       |                |         | 25          | 60      |
| Greenup.....  | 60,000         | 82'6"   |             |         |
| Peru—Zinc Works.....                                  |                |         | 18          | 40      |
| McHenry.....  |                |         | 16          | 91      |
| Vandalia.....   | 60,000         | 82'6"   |             |         |
| Barrington.....                                       |                |         | 18          | 50      |
| Palatine.....   |                |         | 12          | 90      |
| Bureau—Rock Island System.....                        |                |         | 30          | 30      |
| Mokena.....   | 60,000         | 100     |             |         |
| McLearnsboro.....                                     | 60,000         | 122     |             |         |
| Whitehall.....  | 80,000         | 114     |             |         |
| Thebes—Rock Island System.....                        | 50,000         | 50      |             |         |
| Tinley Park.....                                      | 60,000         | 100     |             |         |
| Sullivan.....   | 80,000         | 120     |             |         |
| Chicago—P. S. Peterson's Nursery.....                 | 30,000         | 81      |             |         |
| Lincoln—Hospital for Insane.....                      | 30,000         | 75'6"   |             |         |
| Peoria—Rock Island System.....                        |                |         | 20          | 60      |
| Morgan Park—Mt. Hope Cemetery.....                    | 20,000         | 73'6"   |             |         |
| Monmouth.....   | 115,000        | 127     |             |         |
| Hillsboro, (brick tower).....                         | 50,000         | 93      |             |         |
| North Chicago.....                                    | 100,000        | 105     |             |         |
| Marshall.....   | 80,000         | 115     |             |         |
| Chicago—Illinois Steel Co.....                        | 100,000        | 92'6"   |             |         |
| Chicago.....  | 180,000        | 145     |             |         |
| Ottawa—Rock Island System.....                        |                |         | 20          | 60      |
| Robinson.....   | 75,000         | 110     |             |         |
| Hillsboro—J. R. Challacombe.....                      | 2,000          | 30      |             |         |
| Hinsdale—E. M. Barton.....                            | 15,000         | 60      |             |         |

# *Chicago Bridge & Iron Works*

| Location                           | Water Towers   |                                 | Stand Pipes |         |
|------------------------------------|----------------|---------------------------------|-------------|---------|
|                                    | Cap'y<br>Gals. | Ht. Ft.                         | Dia. Ft.    | Ht. Ft. |
| <b>ILLINOIS—Cont'd</b>             |                |                                 |             |         |
| Harrisburg.....                    | 80,000         | 80                              |             |         |
| Riverdale.....                     | 60,000         | 120                             |             |         |
| Chicago—Deering Harvester Works    | 100,000        | 169                             |             |         |
| Chicago—Nat. Malleable Cast. Co.   | 40,000         | 100                             |             |         |
| Chicago—Simonds Mfg. Co.....       | 50,000         | 120                             |             |         |
| Arlington Heights.....             | 60,000         | 85                              |             |         |
| Plano.....                         | 80,000         | 104 <sup>6</sup> "              |             |         |
| Mt. Sterling (brick tower).....    | 40,000         | 100                             |             |         |
| Marseilles.....                    |                |                                 | 16          | 65      |
| Peoria—Colean Manufacturing Co.    | 50,000         | 104                             |             |         |
| Hinsdale—E. M. Barton.....         | 40,000         | 100                             |             |         |
| Peoria—Peo. & Pek. Un. Ry. Co.     | 100,000        | 89                              |             |         |
| Joliet.....                        | 200,000        | 92 <sup>6</sup> "               |             |         |
| Wyoming (brick tower).....         | 35,000         | 100                             |             |         |
| Jacksonville—Hospital for Insane   | 25,000         | 104                             |             |         |
| Danville—C. & E. I. Ry. Co.....    | 100,000        | 89                              |             |         |
| Delavan.....                       | 70,000         | 93                              |             |         |
| Naperville.....                    | 100,000        | 140                             |             |         |
| Zeigler.....                       | 50,000         | 104                             |             |         |
| Crete.....                         | 50,000         | 120                             |             |         |
| Bartonville—Asylum for Insane..... | 100,000        | 114                             |             |         |
| Chicago—Allis-Chalmers Co.....     |                |                                 | 20          | 135     |
| Chicago—Allis-Chalmers Co.....     | 50,000         | 135                             |             |         |
| Morgan Park.....                   | 100,000        | 140                             |             |         |
| Onarga (brick tower).....          | 50,000         | 92                              |             |         |
| Hinckley—C. B. & Q. Ry. Co.....    | 35,000         | 47                              |             |         |
| E. St. Louis—E. St. L. & Sub. Ry.  | 50,000         | 59                              |             |         |
| Sycamore.....                      | 200,000        | 157                             |             |         |
| Paris.....                         |                |                                 | 24          | 12      |
| St. Charles—Home for Boys.....     | 50,000         | 52                              |             |         |
| Ravinia—A. C. Frost.....           | 40,000         | 126 <sup>6</sup> "              |             |         |
| River Grove—Orphan Society.....    | 20,000         | 107 <sup>6</sup> "              |             |         |
| Hopedale.....                      | 50,000         | 99                              |             |         |
| St. Elmo.....                      | 60,000         | 120                             |             |         |
| Crescent City.....                 | 50,000         | 100                             |             |         |
| Chicago—C. & W. I. Ry.....         | 100,000        | 52'                             |             |         |
| West Pullman—Int'l Harvester Co.   | 100,000        | 139                             |             |         |
| Paw Paw.....                       | 60,000         | 102 <sup>6</sup> "              |             |         |
| Spring Valley.....                 | 150,000        | 115"                            |             |         |
| West Frankfort—C. & E. I. Ry. Co.  | 50,000         | 89                              |             |         |
| De Pe—Mineral Point Zinc Co.....   | 100,000        | 139                             |             |         |
| Winthrop Harbor.....               | 60,000         | 100                             |             |         |
| Lock Haven—C. P. & St. L. Ry Co.   | 60,000         | 35                              |             |         |
| Summit—Resurrection Cemetery.....  | 5,000          | 46                              |             |         |
| Newton.....                        | 80,000         | 120                             |             |         |
| Chicago Heights—E. J. & E. Ry.     | 100,000        | 42 <sup>6</sup> "               |             |         |
| Glenn Ellyn.....                   | 60,000         | 106 <sup>6</sup> "              |             |         |
| McLean—County Asylum.....          | 30,000         | 100 <sup>6</sup> ' <sup>1</sup> |             |         |
| W. Roseland—Paul Vandenburgh       | 5,000          | 55"                             |             |         |
| Mascoutah.....                     | 50,000         | 120                             |             |         |
| Roodhouse.....                     | 60,000         | 120                             |             |         |
| Cullom.....                        | 50,000         | 129                             |             |         |
| Salem—C. & E. I. Ry. Co.....       | 100,000        | 129                             |             |         |
| Kewanee—K. & G. Ry. Co.....        | 50,000         | 129                             |             |         |
| Chicago—Illinois Steel Co.....     | 80,000         | 70                              |             |         |
| East St. Louis—Suburban Ry. Co.    | 35,000         | 96                              |             |         |
| Rochelle—C. B. & Q. Ry. Co.....    | 50,000         | 39 <sup>6</sup> "               |             |         |

# Metal Structures



Chicago B

| Location                            | Water Towers   |         | Stand Pipes |         | Location                |
|-------------------------------------|----------------|---------|-------------|---------|-------------------------|
|                                     | Cap'y<br>Gals. | Ht. Ft. | Dia. Ft     | Ht. Ft. |                         |
| <b>ILLINOIS—Cont'd</b>              |                |         |             |         |                         |
| Milledgeville—C. B. & Q. Ry. Co...  | 50,000         | 39'6"   | .....       | .....   | IOWA—Cont'd             |
| Chicago—Swift & Co.                 | 66,000         | 118     | .....       | .....   | Fort Dodge...           |
| Park Ridge...                       | 100,000        | 100     | .....       | .....   | Eagle Grove...          |
| St. Charles...                      | 100,000        | 119     | .....       | .....   | Forest City...          |
| Minooka...                          | 60,000         | 120     | .....       | .....   | Fonda...                |
| Hawthorne—Western Electric Co.      | 50,000         | 79      | .....       | .....   | Newton...               |
| Chicago—Grand Crossing Tack Co.     | 60,000         | 131'6"  | .....       | .....   | Waukon...               |
| Casey...                            | 80,000         | 174'6"  | .....       | .....   | Oelwin...               |
| Bourbonnais...                      | 50,000         | 125     | .....       | .....   | Walnut...               |
| Morrison—Libby, MacNeil & Libby     | 30,000         | 95'6"   | .....       | .....   | Charles City...         |
| <b>INDIANA</b>                      |                |         |             |         |                         |
| Monticello...                       | 110,000        | 113'5"  | 14          | 110     | Kenosha...              |
| Booneville...                       | 100,000        | 140     | 30          | 75      | Wilton—Rock Island...   |
| Huntington...                       | 75,000         | 100     | 14          | 80      | Washington—Rock Is...   |
| Rensselaer...                       | 100,000        | 109'6"  | 12          | 50      | Iowa City—Rock Is...    |
| Brownstown...                       | 10,000         | 94      | 12          | 120     | Atlantic—Rock Island... |
| Napanee...                          | 20,000         | 48      | 12          | 120     | Dodge...                |
| Syracuse...                         | 50,000         | 94      | 12          | 120     | Kenwood Park...         |
| Tell City...                        | 60,000         | 100     | 12          | 120     | Muscatine—County A...   |
| Noblesville—National Carbon Co...   | 10,000         | 94      | 40          | 30      | Eldon—Rock Island...    |
| Waterloo...                         | 30,000         | 100'6"  | 16          | 110     | Gurnee...               |
| South Bend—Singer Mfg. Co...        | 20,000         | 48      | 16          | 110     | Bonaparte...            |
| Indianapolis—Nat. Mai'ble Cast. Co. | 50,000         | 94      | 16          | 110     | Wilton...               |
| Oakland City...                     | 60,000         | 100     | 16          | 110     | Carroll...              |
| Aurora...                           | 30,000         | 100'6"  | 16          | 110     | West Liberty...         |
| Gas City—U. S. Glass Co...          | 100,000        | 139     | 16          | 110     | Pacific Junction—C...   |
| Richmond—Hospital for Insane...     | 200,000        | 109     | 16          | 110     | Manning...              |
| Evansville—Hospital for Insane...   | 100,000        | 110     | 25          | 120     | Rockford...             |
| Howell—L. & N. Ry. Co...            | 100,000        | 110     | 25          | 120     | Alpena...               |
| St. Mary's Vigo Co.—College...      | 50,000         | 39'6"   | 25          | 120     | Iowa City...            |
| Laketown—Erie R. R. Co...           | 40,000         | 101'6"  | 25          | 120     | Battle Creek...         |
| Fort Wayne—Wayne Knit. Mills...     | 25,000         | 69'     | 25          | 120     | Oscoda...               |
| Fort Wayne—Traction Co...           | 50,000         | 104     | 25          | 120     | Durant...               |
| Indianapolis—E. C. Atkins Co...     | .....          | .....   | 20          | 60      | Humboldt...             |
| <b>INDIAN TERRITORY</b>             |                |         |             |         |                         |
| Chickasha—Rock Island System...     | 100,000        | 120     | 20          | 60      | Summer...               |
| Haileyville—Rock Island System...   | 80,000         | 160     | 20          | 60      | Coon Rapids—C. M...     |
| Paul's Valley...                    | 100,000        | 120     | 20          | 60      | Red Oak—Thos. D. Y...   |
| Purcell...                          | 70,000         | 80      | 20          | 60      | Madrid...               |
| Ardmore...                          | 70,000         | 120     | 20          | 67'6"   | Severl—C. M. & St. B... |
| Holdenville...                      | 80,000         | 80      | 20          | 67'6"   | KANSAS                  |
| Okmulgee...                         | 80,000         | 80      | 20          | 67'6"   | Burrington—Rock Is...   |
| Wilburton...                        | 80,000         | 80      | 20          | 67'6"   | Horton—Rock Is...       |
| Tishomingo...                       | 80,000         | 80      | 20          | 67'6"   | McFarland—Rock Is...    |
| Ada...                              | 80,000         | 80      | 20          | 67'6"   | Belleville—Rock Is...   |
| Tulsa...                            | 80,000         | 80      | 20          | 67'6"   | Goodland—Rock Is...     |
| Bartlesville...                     | 80,000         | 80      | 20          | 67'6"   | Pratt...                |
| Wagoner—M. K. & T. Ry. Co...        | 30,000         | 60      | 20          | 67'6"   | Sedgewick...            |
| Davis...                            | 50,000         | 110     | 20          | 67'6"   | Leoti...                |
| Marlow...                           | 50,000         | 100     | 20          | 67'6"   | Canyon...               |
| Roff...                             | 50,000         | 110     | 20          | 67'6"   | Waverly...              |
| <b>IOWA</b>                         |                |         |             |         |                         |
| Lake City...                        | .....          | .....   | 12          | 80      | Harrison...             |
| Clear Lake...                       | .....          | .....   | 12          | 80      | Marshall...             |

## *Chicago Bridge & Iron Works*

| s | Stand Pipes | t. | Dia. Ft | Ht. Ft. | Location                                | Water Towers | Stand Pipes    |         |
|---|-------------|----|---------|---------|---|--------------|----------------|---------|
|   |             |    |         |         |   |              | Cap'y<br>Gals. | Ht. Ft. |
|   |             |    |         |         | <b>IOWA—Cont'd</b>                      |              |                |         |
|   |             |    |         |         | Fort Dodge.....                         | 104,000      | 116'6"         |         |
|   |             |    |         |         | Eagle Grove.....                        |              |                | 15 100  |
|   |             |    |         |         | Forest City.....                        |              |                | 14 100  |
|   |             |    |         |         | Fonda.....                              | 70,000       | 100            |         |
|   |             |    |         |         | Newton.....                             |              |                | 30 16   |
|   |             |    |         |         | Waukon.....                             |              |                | 14 100  |
|   |             |    |         |         | Oelwein.....                            |              |                | 14 80   |
|   |             |    |         |         | Walnut City.....                        |              |                | 10 100  |
|   |             |    |         |         | Charles City.....                       |              |                | 20 80   |
|   |             |    |         |         | Keosauqua.....                          | 56,000       | 75             |         |
|   |             |    |         |         | Wilton—Rock Island System.....          |              |                | 20 60   |
|   |             |    |         |         | Washington—Rock Island System.....      |              |                | 20 60   |
|   |             |    |         |         | Iowa City—Rock Island System.....       |              |                | 12 40   |
|   |             |    |         |         | Atlantic—Rock Island System.....        |              |                | 16 40   |
|   |             |    |         |         | Osage.....                              | 80,000       | 134            |         |
|   |             |    |         |         | Kenwood Park.....                       | 40,000       | 76'            |         |
|   |             |    |         |         | Muscatine—County Asylum.....            | 20,000       | 40             |         |
|   |             |    |         |         | Eldon—Rock Island System.....           |              |                | 20 60   |
|   |             |    |         |         | Garner.....                             | 60,000       | 120            |         |
|   |             |    |         |         | Bonaparte.....                          |              |                | 10 60   |
|   |             |    |         |         | Wilton.....                             | 50,000       | 82             |         |
|   |             |    |         |         | Clarinda.....                           |              |                | 20 60   |
|   |             |    |         |         | West Liberty.....                       | 60,000       | 102            |         |
|   |             |    |         |         | Pacific Junction—C. B. & Q. Ry.....     | 50,000       | 41             |         |
|   |             |    |         |         | Manning.....                            | 60,000       | 128'9"         |         |
|   |             |    |         |         | Rockford.....                           | 80,000       | 120            |         |
|   |             |    |         |         | Malvern.....                            | 65,000       | 113'6"         |         |
|   |             |    |         |         | Iowa City.....                          | 80,000       | 74'6"          |         |
|   |             |    |         |         | Battle Creek.....                       | 60,000       | 91'6"          |         |
|   |             |    |         |         | Osceola.....                            | 60,000       | 102            |         |
|   |             |    |         |         | Durant.....                             | 65,000       | 104            |         |
|   |             |    |         |         | Humboldt.....                           |              |                | 20 50   |
|   |             |    |         |         | Sumner.....                             | 50,000       | 125            |         |
|   |             |    |         |         | Coon Rapids—C. M. & St. P. Ry.....      | 80,000       | 43             |         |
|   |             |    |         |         | Red Oak—Thos. D. Murphy & Co.....       | 40,000       | 51'6"          |         |
|   |             |    |         |         | Valley Junct.—C. R. I. & P. Ry. Co..... |              |                | 22 49   |
|   |             |    |         |         | Madrid.....                             | 50,000       | 120            |         |
|   |             |    |         |         | Sewell—C. M. & St. P. Ry. Co.....       | 80,000       | 38'6"          |         |
|   |             |    |         |         | <b>KANSAS</b>                           |              |                |         |
|   |             |    |         |         | Herrington—Rock Island System.....      |              |                | 20 60   |
|   |             |    |         |         | Horton—Rock Island System.....          |              |                | 20 60   |
|   |             |    |         |         | McFarland—Rock Island System.....       |              |                | 20 60   |
|   |             |    |         |         | Belleview—Rock Island System.....       |              |                | 20 60   |
|   |             |    |         |         | Goodland—Rock Island System.....        |              |                | 20 60   |
|   |             |    |         |         | Pratt.....                              | 50,000       | 80             |         |
|   |             |    |         |         | Scammon.....                            | 70,000       | 101            |         |
|   |             |    |         |         | LaHarpe.....                            | 70,000       | 100            |         |
|   |             |    |         |         | Cherryvale.....                         |              |                | 16 80   |
|   |             |    |         |         | Waverly.....                            | 30,000       | 100            |         |
|   |             |    |         |         | Humbolt.....                            | 70,000       | 120            |         |
|   |             |    |         |         | Chanute—Kansas Natural Gas Co.....      | 10,000       | 69             |         |
|   |             |    |         |         | Philipspburg.....                       |              |                | 22 49   |
|   |             |    |         |         | Rosedale—M. K. & T. Ry. Co.....         | 40,000       | 101'6"         |         |
|   |             |    |         |         | Lincoln Center.....                     | 70,000       | 120            |         |
|   |             |    |         |         | Stafford.....                           | 50,000       | 100            |         |
|   |             |    |         |         | Udall.....                              | 30,000       | 75'6"          |         |

# Metal Structures



| Location                          | Water Towers   |         | Stand Pipes |         |
|-----------------------------------|----------------|---------|-------------|---------|
|                                   | Cap'y<br>Gals. | Ht. Ft. | Dia. Ft     | Ht. Ft. |
| <b>KENTUCKY</b>                   |                |         |             |         |
| Clinton                           | 40,000         | 60      |             |         |
| Highlands                         | 80,000         | 135'6"  |             |         |
| Wycliffe                          | 40,000         | 75      |             |         |
| Henderson—Coquillard Wag. Wks.    | 50,000         | 79      |             |         |
| Glenview                          | 30,000         | 75'6"   |             |         |
| Henderson Cotton Mills            | 50,000         | 99      |             |         |
| Lawrenceburg                      | 60,000         | 84      |             |         |
| Danville—Cin., N. O. & Tex. Pac.  | 100,000        | 81      |             |         |
| Lexington—Cin., N. O. & Tex. Pac. | 100,000        | 50      |             |         |
| Henderson—Delker Carriage Co.     | 25,000         | 74      |             |         |
| Lexington—Lex. & East. Ry. Co.    | 50,000         | 70'6"   |             |         |
| Louisville—Louisville Water Co.   | 1200000        | 220'    |             |         |
| Lexington—L. & E. Ry. Co.         | 50,000         | 39'6"   |             |         |
| Hopkinsville—Imperial Tob. Co.    | 20,000         | 107'6"  |             |         |
| Lexington—J. J. Fitzgerald        |                |         | 10          | 55      |
| <b>LOUISIANA</b>                  |                |         |             |         |
| Natchitoches                      | 60,000         | 115     |             |         |
| Ruston                            | 80,000         | 84      |             |         |
| Jennings                          | 65,000         | 112     |             |         |
| LeCompte                          | 30,000         | 100     |             |         |
| Clarks—Louisiana Cent. Lumber Co. | 45,000         | 85      |             |         |
| Rayne                             | 50,000         | 104     |             |         |
| Washington                        | 50,000         | 100     |             |         |
| Shreveport—N. O. & N. E. Ry. Co.  | 50,000         | 69'6"   |             |         |
| Minden                            | 100,000        | 119     |             |         |
| Lake Providence                   | 60,000         | 112     |             |         |
| Boyce                             | 50,000         | 100     |             |         |
| Vidalia                           | 50,000         | 100     |             |         |
| Marksville                        | 70,000         | 110     |             |         |
| Natalbany—Natalbany Lum. Co.      | 60,000         | 136'6"  |             |         |
| Trout—Good Pine Lumber Co.        | 25,000         | 97'     |             |         |
| Selma—Grant Land & Lumber Co.     | 25,000         | 97'     |             |         |
| Minden—Minden Lumber Co.          |                |         | 16          | 16      |
| <b>MAINE</b>                      |                |         |             |         |
| South Berwick—Cummings Shoe Co.   | 40,000         | 101'6"  |             |         |
| Fort McKinley, U. S. A.           | 150,000        | 120'6"  |             |         |
| Katahdin Pulp & Paper Co.         | 40,000         | 76'6"   |             |         |
| Spragues Falls—St. Croix Pap. Co. | 75,000         | 145     |             |         |
| <b>MARYLAND</b>                   |                |         |             |         |
| Tacoma Park                       | 50,000         | 164     |             |         |
| Hyattsville                       | 100,000        | 103     |             |         |
| Forest Glen—Nat. Park Seminary    | 40,000         | 99'3"   |             |         |
| Hagerstown—Pope Mig. Co.          | 50,000         | 129     |             |         |
| College Park P. O.—Md. Agri. Col. | 30,000         | 95'6"   |             |         |
| Baltimore—West Md. & Tide W. Ry.  | 25,000         | 53      |             |         |
| Baltimore Fidelity Warehouse Co.  | 40,000         | 82      |             |         |
| Baltimore—Md. Color Ptg. Co.      | 30,000         | 34      |             |         |
| Hagerstown—Hag. Furniture Co.     | 40,000         | 126'6"  |             |         |
| <b>MASSACHUSETTS</b>              |                |         |             |         |
| Webster—Slater Woolen Mills       | 100,000        | 89      |             |         |
| North Adams—Arnold Print Wks.     | 50,000         | 89      |             |         |
| Millville—Woonsocket Rubber Co.   | 50,000         | 129     |             |         |

Chicago B



Location

**MASSACHUSETTS**

E. Pepperell—Nashua  
Wheelwright—Wheel-  
Walpole  
West Newton—Martin  
Boston—Boston & M  
Boston—Boston & M

**MICHIGAN**

Richmond  
Kinnison  
Paw Paw  
Hartford  
Leslie  
Algoma  
New Baltimore  
Armeda  
Bangor  
Copperville  
Corunna  
Grand Rapids—Pere  
Detroit—American H  
Care  
Manistique  
Grosse Point  
Charlevoix  
Spring Lake

**MINNESOTA**

New Ulm  
Northfield  
Wayzata  
Le Sueur  
Morris  
Redwood Falls  
Hendricks  
Warren  
Mora  
Montgomery  
Fond du Lac—Gr. N  
Stillwater—Water C

**MISSISSIPPI**

Oxford  
Port Gibson  
Brookhaven  
Segovia  
McComb City  
Como  
Starkeville  
Carrollton  
Comer  
Brookhaven—Pearl  
Meridian—N. O. &  
Rosedale Cotton Co  
Greenwood  
Gloster  
Sardis

# Chicago Bridge & Iron Works

| rs<br>ft.                   | Stand Pipes | Location                         | Water Towers   |         | Stand Pipes |         |
|-----------------------------|-------------|----------------------------------|----------------|---------|-------------|---------|
|                             |             |                                  | Cap'y<br>Gals. | Ht. Ft. | Dia. Ft     | Ht. Ft. |
| <b>MASSACHUSETTS—Cont'd</b> |             |                                  |                |         |             |         |
|                             |             | E. Pepperel—Nashua R. Paper Co.  | 50,000         | 89      |             |         |
|                             |             | Wheelwright—Wheelwright Pap. Co. | 50,000         | 104     |             |         |
|                             |             | Walpole.....                     |                |         | 40          | 45      |
|                             |             | West Newton—Martin Mig. Co.      | 25,000         | 84'     |             |         |
|                             |             | Boston—Boston & Maine Ry.        | 100,000        | 239     |             |         |
|                             |             | Boston—Boston & Maine Ry.        | 100,000        | 179     |             |         |
| <b>MICHIGAN</b>             |             |                                  |                |         |             |         |
|                             |             | Richmond.....                    |                |         | 12          | 100     |
|                             |             | Munising.....                    |                |         | 25          | 40      |
|                             |             | Paw Paw.....                     | 60,000         | 115     |             |         |
|                             |             | Hartford.....                    | 40,000         | 100     |             |         |
|                             |             | Leslie.....                      |                |         | 12          | 80      |
|                             |             | Algonac.....                     | 50,000         | 80      |             |         |
|                             |             | New Baltimore.....               | 40,000         | 100     |             |         |
|                             |             | Armada.....                      | 40,000         | 100     |             |         |
|                             |             | Bangor.....                      | 50,000         | 120     |             |         |
|                             |             | Coopersville.....                | 30,000         | 110'6"  |             |         |
|                             |             | Corunna.....                     | 60,000         | 91'6"   |             |         |
|                             |             | Grand Rapids—Pere Mar. Ry. Co.   | 100,000        | 89      |             |         |
|                             |             | Detroit—American Blower Co.      | 60,000         | 156'6"  |             |         |
|                             |             | Clare.....                       | 75,000         | 115     |             |         |
|                             |             | Manistique.....                  | 50,000         | 100     |             |         |
|                             |             | Grosse Point.....                | 100,000        | 88      |             |         |
|                             |             | Charlevoix.....                  | 100,000        | 145     |             |         |
|                             |             | Spring Lake.....                 | 30,000         | 125'6"  |             |         |
| <b>MINNESOTA</b>            |             |                                  |                |         |             |         |
|                             |             | New Ulm.....                     |                |         | 11          | 36      |
|                             |             | Northfield.....                  |                |         | 35          | 35      |
|                             |             | Wayzata.....                     | 13,000         | 28      |             |         |
|                             |             | Le Sueur.....                    |                |         | 18          | 75      |
|                             |             | Morris.....                      | 75,000         | 100     |             |         |
|                             |             | Redwood Falls.....               | 100,000        | 120     |             |         |
|                             |             | Hendricks.....                   | 60,000         | 108     |             |         |
|                             |             | Warren.....                      | 50,000         | 110     |             |         |
|                             |             | Mora.....                        | 50,000         | 110     |             |         |
|                             |             | Montgomery.....                  | 52,000         | 101     |             |         |
|                             |             | Fond du Lac—Gt. North. Pow. Co.  | 308,000        | 229     |             |         |
|                             |             | Stillwater—Water Co.....         |                |         | 20          | 45      |
| <b>MISSISSIPPI</b>          |             |                                  |                |         |             |         |
|                             |             | Oxford.....                      | 65,000         | 124     |             |         |
|                             |             | Port Gibson.....                 | 80,000         | 125     |             |         |
|                             |             | Brookhaven.....                  | 90,000         | 130     |             |         |
|                             |             | Senatobia.....                   | 40,000         | 87      |             |         |
|                             |             | McComb City.....                 | 100,000        | 114     |             |         |
|                             |             | Como.....                        | 40,000         | 100     |             |         |
|                             |             | Starkville.....                  | 50,000         | 100     |             |         |
|                             |             | Clarksville.....                 | 60,000         | 100     |             |         |
|                             |             | Corinth.....                     | 50,000         | 100     |             |         |
|                             |             | Brookhaven—Pearl Riv. Lum. Co.   | 45,000         | 100     |             |         |
|                             |             | Meridian—N. O. & N. E. Ry. (2.)  | 75,000         | 89      |             |         |
|                             |             | Rosedale Cotton Compress Co..... | 15,000         | 95      |             |         |
|                             |             | Greenwood.....                   | 100,000        | 120     |             |         |
|                             |             | Gloster.....                     | 35,000         | 118     |             |         |
|                             |             | Sardis.....                      | 60,000         | 100     |             |         |

# Metal Structures

Chicago B

| Location                            | Water Towers   |         | Stand Pipes |         |
|-------------------------------------|----------------|---------|-------------|---------|
|                                     | Cap'y<br>Gals. | Ht. Ft. | Dia. Ft.    | Ht. Ft. |
| <b>MISSISSIPPI—Cont'd</b>           |                |         |             |         |
| Hazlehurst.....                     | 75,000         | 110     |             |         |
| Rosedale.....                       | 30,000         | 100     |             |         |
| Magnolia.....                       | 15,000         | 50      |             |         |
| Hollandale.....                     | 40,000         | 100     |             |         |
| Picayune—N. O. & Northeast. Ry.     | 75,000         | 75      |             |         |
| Centerville.....                    | 35,000         | 108     |             |         |
| Grenada—Ayer & Lord Tie Co.         | 100,000        | 88      |             |         |
| Belzona.....                        | 75,000         | 140     |             |         |
| Mendenhall—Gulf & Ship Isl. Ry.     | 50,000         | 35      |             |         |
| Belzona (reservoir tank).....       |                |         | 35          | 14      |
| Carrollton.....                     |                |         | 10          | .60     |
| Magnolia.....                       | 100,000        | 100     |             |         |
| Aberdeen.....                       | 100,000        | 130     |             |         |
| Ellisville.....                     | 60,000         | 102     |             |         |
| Lumberton.....                      | 60,000         | 100     |             |         |
| Houston.....                        | 70,000         | 113     |             |         |
| Raymond.....                        | 30,000         | 98      |             |         |
| Clarksdale—People's Com. Co.        | 15,000         | 93      |             |         |
| New Albany—N. A. Compres Co.        | 30,000         | 85'6"   |             |         |
| Jackson—Jackson Graphite Co.        | 10,000         | 49      |             |         |
| Macon.....                          | 100,000        | 128     |             |         |
| Utica.....                          | 50,000         | 100     |             |         |
| Shelby.....                         | 50,000         | 100     |             |         |
| <b>MISSOURI</b>                     |                |         |             |         |
| St. Charles.....                    |                |         | 25          | 70      |
| Sedalia—Mo., Kan. & Tex. Ry. Co.    | 80,000         | 90      |             |         |
| West Plains.....                    |                |         | 14          | 50      |
| Paris.....                          | 60,000         | 110     |             |         |
| Eldorado Springs.....               | 70,000         | 86      |             |         |
| Springfield.....                    |                |         | 35          | 105     |
| Rich Hill.....                      | 75,000         | 120     |             |         |
| Armour—C. B. & Q. Ry. Co.           | 90,000         | 56      |             |         |
| Bonne Terre—St. Joseph Lead Co.     | 36,000         | 48'6"   |             |         |
| Jefferson Barracks, U. S. A.        | 150,000        | 127     |             |         |
| Sulphur Springs—Mo. Pac. Ry. Co.    |                |         |             |         |
| Perryville—St. Mary's Seminary..... | 50,000         | 149     |             |         |
| Cameron.....                        | 70,000         | 93      |             |         |
| New Madrid.....                     | 50,000         | 115     |             |         |
| Fulton—Asylum for Deaf & Dumb       | 40,000         | 91'6"   |             |         |
| Liberty.....                        | 60,000         | 97      |             |         |
| Boonville.....                      | 70,000         | 120     |             |         |
| Kansas City—Griffin Wheel Co.       | 30,000         | 110'6"  |             |         |
| Charleston—Water Co.....            | 30,000         | 100'6"  |             |         |
| Fiat River—Federal Lead Co.         | 108,000        | 93      |             |         |
| Flat River—Federal Lead Co.         |                |         |             |         |
| Coburg—C. M. & St. P. Ry. Co.       | 100,000        | 39'2"   |             |         |
| Kearney—C. B. & Q. Ry. Co.          | 100,000        | 43'2"   |             |         |
| Walden—C. B. & Q. Ry. Co.           | 100,000        | 43'2"   |             |         |
| Napier—C. B. & Q. Ry. Co.           | 100,000        | 43'2"   |             |         |
| <b>MONTANA</b>                      |                |         |             |         |
| Shinook.....                        |                |         |             |         |
| Great Falls.....                    | 100,000        | 120     |             |         |
| <b>NEBRASKA</b>                     |                |         |             |         |
| Wakefield.....                      |                |         | 40          | 60      |
|                                     |                |         | 12          | 80      |

Location

NEBRASKA—Con

Humphrey.....

Randolph.....

Fairbury—Rock Island

Wakefield—Rock Island

Boonfield.....

Alton.....

Lampl—Rock Island S

Pence.....

Geedey.....

Arlington.....

NEW HAMPSHIRE

Portsmouth—U. S. Na

Berlin—International

CAMDEN—N. Y. Shipb

Cape May.....

South Atlantic City—L

Lodi—Boettger Pier

Harrison—Intern'l Ste

Paterson—Nicholson H

Paterson—Botany Wors

Bayonne—Babcock &

Newark—F. D. Hyde,

Bayonne—Safety In C

Camden—Parr & Baile

Hoboken—D. L. W

Kingland—D. L. & W

Newark—Hay Foundr

Camden—Water Co.

Paterson—Gen Mills

Paterson—Manhattan R

Newark—N. K. Wareho

Kingland—D. L. & W

NEW YORK

Charlotte.....

Port Washington.....

Center Islp.....

Buffalo—Lackawanna

Brooklyn—Thomas Asy

Schenectady—General

Brookville Manor.....

Brooklyn Heights—St

Schenectady.....

Buffalo—Intern'l Sta

Chester—Intern'l Sta

Tonawanda—Ticomde

Paper Co.....

International Paper C

Governor's Island, U.

Rochester—State Hos

# Chicago Bridge & Iron Works

| Stand Pipes |         |
|-------------|---------|
| Dia. Ft.    | Ht. Ft. |
| 35          | 14      |
| 10          | 60      |

## NEBRASKA—Cont'd

| Water Towers |                                   |                | Stand Pipes |          |         |
|--------------|-----------------------------------|----------------|-------------|----------|---------|
|              | Location                          | Cap'y<br>Gals. | Ht. Ft.     | Dia. Ft. | Ht. Ft. |
|              | Humphrey.....                     | 40,000         | 100         | 12       | 60      |
|              | Randolph.....                     |                |             | 20       | 60      |
|              | Fairbury—Rock Island System.....  |                |             | 12       | 40      |
|              | Wakefield—Rock Island System..... |                |             | 12       | 60      |
|              | Bloomfield.....                   |                |             |          |         |
|              | Albion.....                       | 80,000         | 84'6"       | 12       | 60      |
|              | Laurel—Rock Island System.....    |                |             |          |         |
|              | Pierce.....                       | 50,000         | 100         |          |         |
|              | Greeley.....                      | 40,000         | 98          |          |         |
|              | Arlington.....                    | 40,000         | 78          |          |         |

## NEW HAMPSHIRE

|                                    |        |     |    |     |
|------------------------------------|--------|-----|----|-----|
| Portsmouth—U. S. Navy Yard.....    |        |     | 30 | 100 |
| Berlin—International Paper Co..... | 50,000 | 132 |    |     |

## NEW JERSEY

|                                       |         |       |    |    |
|---------------------------------------|---------|-------|----|----|
| Dover—Dela., L. & Western Ry.....     |         |       | 20 | 48 |
| Delawanna—Worthen & Aldrich.....      | 100,000 | 139   |    |    |
| Vineland.....                         | 185,000 | 120   |    |    |
| Camden—N. Y. Shipbldg. Co.....        | 150,000 | 242   |    |    |
| Cape May.....                         | 150,000 | 135   |    |    |
| South Atlantic City—Pa. R. R. Co..... | 25,000  | 69'6" |    |    |
| Lodi—Boettger Piece Dye Works.....    | 75,000  | 98    |    |    |
| Harrison—Intern'l Steam Pump Co.....  | 100,000 | 150   |    |    |
| Paterson—Nicholson File Co.....       | 60,000  | 100   |    |    |
| Passaic—Botany Worsted Co.....        | 100,000 | 139   |    |    |
| Bayonne—Babcock & Wilcox Co.....      | 100,000 | 140   |    |    |
| Newark—F. D. Hyde.....                | 25,000  | 80    |    |    |
| Bayonne—Safety In. Cable Co.....      | 50,000  | 104   |    |    |
| Camden—Farr & Bailey Mfg. Co.....     | 100,000 | 149   |    |    |
| Hoboken—D. L. & W. Ry. Co.....        | 100,000 | 139   |    |    |
| Kingsland—D. L. & W. Ry. Co.....      | 100,000 | 139   |    |    |
| Newark—Hay Foundry & Mach. Co.....    | 30,000  | 85'6" |    |    |
| Camden—Water Co.....                  | 30,000  | 90    |    |    |
| Passaic—Gera Mills.....               | 50,000  | 129   |    |    |
| Passaic—Manhattan Rubber Co.....      | 50,000  | 104   |    |    |
| Newark—Nk. Warehouse Co. (2).....     | 30,000  | 45'6" |    |    |
| Kingsland—D. L. & W. Ry. Co.....      | 60,000  | 44    |    |    |

## NEW YORK

|  |         |     |    |    |
|--|---------|-----|----|----|
| Charlotte.....                               |         |     | 14 | 75 |
| Port Washington.....                         |         |     | 20 | 80 |
| Center Islp.....                             |         |     | 20 | 85 |
| Buffalo—Lackawanna Steel Co.....             | 112,000 | 162 |    |    |
| Iroquois—Thomas Asylum.....                  | 25,000  | 100 |    |    |
| Schenectady—General Electric Co.....         |         |     | 60 | 50 |
| Briarcliff Manor.....                        | 100,000 | 140 |    |    |
| Brooklyn Heights—Street Ry. Co.....          | 100,000 | 109 |    |    |
| Schenectady.....                             |         |     | 90 | 55 |
| Buffalo—Intern'l Steam Pump Co.....          | 50,000  | 129 |    |    |
| Chappaqua—V. Guinzburg (stone tower).....    | 50,000  | 51  |    |    |
| Ticonderoga—Ticonderoga Pulp & Paper Co..... | 100,000 | 139 |    |    |
| International Paper Co.....                  | 50,000  | 104 |    |    |
| Governor's Island, U. S. A.....              |         |     | 27 | 44 |
| Rochester—State Hospital.....                |         |     | 20 | 85 |

# Metal Structures

Chicago B

| Location                                   | Water Towers |         | Stand Pipes |         | Location |
|--|--------------|---------|-------------|---------|----------|
|  | Cap'y Gals.  | Ht. Ft. | Dia. Ft     | Ht. Ft. |          |
| <b>NEW YORK—Cont'd</b>                     |              |         |             |         |          |
| Poughkeepsie—De Laval Sep. Wks.            | 80,000       | 95'6"   |             |         |          |
| Rochester—Stromberg-Carl's n Telephone Co. | 100,000      | 139     |             |         |          |
| Scotia                                     | 100,000      | 159     |             |         |          |
| Sherill—Oneida Community Co.               | 30,000       | 75'6"   |             |         |          |
| Watertown—N. Y. Air Brake Co.              | 75,000       | 135     |             |         |          |
| Utica—Foster Bros.                         | 40,000       | 101'6"  |             |         |          |
| Irvington—Isaac Stern                      | 100,000      | 48'2"   |             |         |          |
| Elmsford                                   | 40,000       | 115     |             |         |          |
| Saratoga Springs—Clark Text. Co.           |              |         | 15          | 75      |          |
| Hawthorne                                  |              |         | 15          | 75      |          |
| Buffalo—Geo. N. Peirce                     | 60,000       | 106'6"  |             |         |          |
| Scarborough—James Speyer                   | 30,000       | 54      |             |         |          |
| <b>NORTH CAROLINA</b>                      |              |         |             |         |          |
| Charlotte                                  | 50,000       | 80      |             |         |          |
| Reidsville                                 | 75,000       | 125     |             |         |          |
| Wadesboro                                  | 75,000       | 125     |             |         |          |
| High Point                                 | 150,000      | 165     |             |         |          |
| Clifton—Clifton Mfg. Co.                   | 50,000       | 61      |             |         |          |
| Clifton—Clifton Mfg. Co.                   | 60,000       | 51'6"   |             |         |          |
| Glen Dale—Clifton Mfg. Co.                 | 60,000       | 61'6"   |             |         |          |
| Washington                                 | 100,000      | 128     |             |         |          |
| Greensboro                                 | 200,000      | 174     |             |         |          |
| Old Fort—U. S. Leather Co.                 |              |         | 20          | 60      |          |
| Wilson—Imperial Tobacco Co.                | 25,000       | 100     |             |         |          |
| Rocky Mount—Imperial Tob. Co.              | 20,000       | 97'6"   |             |         |          |
| Greenville—Imperial Tobacco Co.            | 20,000       | 102'6"  |             |         |          |
| Morganton                                  |              |         | 14          | 84      |          |
| Oxford                                     | 100,000      | 139     |             |         |          |
| Graham                                     | 75,000       | 159     |             |         |          |
| West Raleigh—Agricultural Col.             | 30,000       | 90'6"   |             |         |          |
| Spencer                                    | 75,000       | 159     |             |         |          |
| Gastonia—Loray Mills                       | 30,000       | 75'6"   |             |         |          |
| Burlington—Glencoe Mills                   | 30,000       | 85'6"   |             |         |          |
| Asheville—Southern Ry.                     | 100,000      | 63'2"   |             |         |          |
| Gastonia—Clara Mfg. Co.                    | 50,000       | 79'     |             |         |          |
| Lumberton—Dresden Cotton Mills             | 40,000       | 76'6"   |             |         |          |
| <b>NORTH DAKOTA</b>                        |              |         |             |         |          |
| Jamestown                                  |              |         | 20          | 55      |          |
| <b>OHIO</b>                                |              |         |             |         |          |
| Bluffton                                   | 85,000       | 112'8"  |             |         |          |
| Lynchburg                                  | 40,000       | 98      |             |         |          |
| Delphos                                    |              |         | 20          | 130     |          |
| Rockford                                   |              |         | 11          | 100     |          |
| Blanchester                                | 50,000       | 110     |             |         |          |
| Galion                                     | 155,000      | 162'6"  |             |         |          |
| Shelby                                     |              |         | 16          | 130     |          |
| Hiram                                      |              |         | 12          | 60      |          |
| Continental                                |              |         | 10          | 100     |          |
| Chicago                                    | 80,000       | 103     |             |         |          |
| Sycamore                                   | 40,000       | 100     |             |         |          |
| College Hill                               | 100,000      | 154     |             |         |          |
| Fort Recovery                              | 50,000       | 110     |             |         |          |
| Leipsic                                    | 50,000       | 115     |             |         |          |

OHIO—Cont'd  
 Van Wert.....  
 Waynesville.....  
 Cuyahoga Falls.....  
 Hamilton—Champion  
 Cleveland—National C  
 Haelton—Pitts. & L  
 Plymouth.....  
 Columbus Grove.....  
 Mt. Gilead.....  
 Gambier—Kenyon Col  
 New Vienna.....  
 Bainbridge.....  
 West Milton.....  
 New Bremen.....  
 Johnstown.....  
 Vermilion.....  
 Columbus State Hospi  
 Covington.....  
 Upper Sandusky—Wa  
 Lancaster—Ohio Flint  
 Fremont—National Ca  
 State Soldiers' Home,  
 Fredericktown.....  
 Rocky River—Water  
  
 OKLAHOMA  
 Shawnee.....  
 Ponca City.....  
 Stillwater.....  
 Kingfisher.....  
 Newark.....  
 Hennessey.....  
 Tokawa.....  
 Pond Creek.....  
 Blackwell.....  
 Whiteagle—Ponco Ind  
 Melford.....  
 Alva.....  
 Gurmon.....  
 Watonga.....  
 Gordell.....  
 Magnum.....  
 Chandler.....  
 Bridgeport.....  
 Port Sill—U. S. A.  
 Farview—K. C. M. &  
 Tecumseh.....  
  
 PENNSYLVANIA  
 Nicholson—D. L. &  
 Stroudsburg—D. L.  
 Lehighton—Lockaway  
 Philadelphia—Robt.  
 Leather Co.  
 Lancaster.....  
 Derry Church—Hersh

# Chicago Bridge & Iron Works

| Stand Pipes<br>Dia. Ft. Ht. Ft. | Location                                       | Water Towers   |         | Stand Pipes |         |
|---------------------------------|--|----------------|---------|-------------|---------|
|                                 |  | Cap'y<br>Gals. | Ht. Ft. | Dia. Ft.    | Ht. Ft. |
| <b>OHIO—Cont'd</b>              |  |                |         |             |         |
|                                 | Van Wert.                                      | 120,000        | 150     |             |         |
|                                 | Waynesville.                                   |                |         | 12          | 80      |
|                                 | Cuyahoga Falls.                                | 100,000        | 84      |             |         |
|                                 | Hamilton—Champion Paper Co.                    | 125,000        | 100     |             |         |
|                                 | Cleveland—National Carbon Co.                  | 40,000         | 100     |             |         |
| 15 75                           | Hazleton—Pitts. & L. E. R. R. (2).             | 60,000         | 51'6"   |             |         |
|                                 | Plymouth.                                      | 50,000         | 129     |             |         |
|                                 | Columbus Grove.                                | 60,000         | 115     |             |         |
|                                 | Mt. Gilead.                                    | 50,000         | 129     |             |         |
|                                 | Gambier—Kenyon College.                        | 40,000         | 77'6"   |             |         |
| 15 75                           | New Vienna.                                    | 50,000         | 115     |             |         |
|                                 | Bainbridge.                                    | 30,000         | 109'6"  |             |         |
|                                 | West Milton.                                   | 40,000         | 140     |             |         |
|                                 | New Bremen.                                    | 40,000         | 110     |             |         |
|                                 | Johnstown.                                     | 40,000         | 110     |             |         |
|                                 | Vermillion.                                    | 100,000        | 100     |             |         |
|                                 | Columbus State Hospital.                       | 100,000        | 150     |             |         |
|                                 | Covington.                                     | 50,000         | 150     |             |         |
|                                 | Upper Sandusky—Water Co.                       | 100,000        | 100     |             |         |
|                                 | Lancaster—Ohio Flint Glass Wks.                | 75,000         | 135     |             |         |
|                                 | Fremont—National Carbon Co.                    | 30,000         | 100'6"  |             |         |
|                                 | State Soldiers' Home, Erie County.             | 60,000         | 150     |             |         |
|                                 | Fredericktown.                                 | 40,000         | 110     |             |         |
| 20 60                           | Rocky River—Water Co.                          |                |         | 15          | 100     |
| <b>OKLAHOMA</b>                 |  |                |         |             |         |
|                                 | Shawnee.                                       | 100,000        | 140     |             |         |
|                                 | Ponca City.                                    | 100,000        | 120     |             |         |
| 14 84                           | Stillwater.                                    | 100,000        | 120     |             |         |
|                                 | Kingfisher.                                    | 100,000        | 140     |             |         |
|                                 | Newkirk.                                       | 100,000        | 140     |             |         |
|                                 | Hennessey.                                     | 30,000         | 100     |             |         |
|                                 | Tonkawa.                                       | 60,000         | 120     |             |         |
|                                 | Pond Creek.                                    | 60,000         | 120     |             |         |
|                                 | Blackwell.                                     | 80,000         | 160     |             |         |
|                                 | Whiteagle—Ponca Indian School.                 | 20,000         | 91      |             |         |
|                                 | Medford.                                       | 60,000         | 120     |             |         |
|                                 | Alva.  | 60,000         | 106'6"  |             |         |
|                                 | Guymon.  | 40,000         | 66'6"   |             |         |
|                                 | Watonga.                                       | 40,000         | 120     |             |         |
| 20 55                           | Cordell.                                       | 40,000         | 120     |             |         |
|                                 | Mangum.  | 80,000         | 120     |             |         |
|                                 | Chandler.                                      |                |         | 12          | 100'    |
|                                 | Bridgeport.                                    | 40,000         | 120     |             |         |
|                                 | Fort Sill, U. S. A.                            | 100,000        | 105     |             |         |
| 20 130                          | Fairview—K. C. M. & O. Ry. Co.                 | 50,000         | 109     |             |         |
| 11 100                          | Tecumseh.                                      | 50,000         | 100     |             |         |
| <b>PENNSYLVANIA</b>             |  |                |         |             |         |
| 16 130                          | Nicholson—D. L. & W. R. R. Co.                 |                |         | 22          | 37'6"   |
| 12 60                           | Stroudsburg—D. L. & W. R. R.                   |                |         | 20          | 60      |
| 10 100                          | Lebanon—Lackawanna Steel Co.                   | 30,000         | 115     |             |         |
|                                 | Philadelphia—Robt. H. Foerderer<br>Leather Co. | 100,000        | 139     |             |         |
|                                 | Lancaster.                                     |                |         | 25          | 110     |
|                                 | Derry Church—Hershey Chocolate<br>Co.          | 50,000         | 90      |             |         |

# Metal Structures

Chicago B

| Location                         | Water Towers   |                       | Stand Pipes |         | Location |
|----------------------------------|----------------|-----------------------|-------------|---------|----------|
|                                  | Cap'y<br>Gals. | Ht. Ft.               | Dia. Ft     | Ht. Ft. |          |
| <b>PENNSYLVANIA—Cont'd</b>       |                |                       |             |         |          |
| Shamokin—Shamokin Lumber Co.     | 30,000         | 120'6"                |             |         |          |
| Jeannette—Jeannette Glass Wks.   | 75,000         | 135                   |             |         |          |
| Pittsburg—Pittsburg Rys. Co.     | 75,000         | 135                   |             |         |          |
| <b>RHODE ISLAND</b>              |                |                       |             |         |          |
| Natick—B. B. & R. Knight Mills.  | 100,000        | 60                    |             |         |          |
| Pontiac—B. B. & R. Knight Mills. | 60,000         | 146                   |             |         |          |
| Apponaug—Wm. Wanton Dunnell.     | 100,000        | 139                   |             |         |          |
| Providence—Pocassett Worsted Co. | 50,000         | 119                   |             |         |          |
| Georgiaville—Bermon Mills.       | 40,000         | 60                    |             |         |          |
| Thornton—H. Hartley.             | 50,000         | 119                   |             |         |          |
| Warren—Warren Mfg. Co.           | 75,000         | 135                   |             |         |          |
| Warren—Parker Mills.             | 75,000         | 135                   |             |         |          |
| <b>SOUTH CAROLINA</b>            |                |                       |             |         |          |
| Greenville—Monaghan Mills.       | 60,000         | 131'6"                |             |         |          |
| Griers—Victor Manufacturing Co.  | 60,000         | 112                   |             |         |          |
| Union—Monarch Mills.             | 40,000         | 132                   |             |         |          |
| Darlington—Darlington Mills.     | 50,000         | 114                   |             |         |          |
| Spartanburg—Saxon Mills.         | 40,000         | 122'6"                |             |         |          |
| Woodruff—Woodruff Mills.         | 50,000         | 121                   |             |         |          |
| Florence.                        | 100,000        | 132                   |             |         |          |
| Belton—Belton Mills.             | 100,000        | 120                   |             |         |          |
| Honea Path—Chiquola Mfg. Co.     | 50,000         | 125                   |             |         |          |
| Ninety-Six Cotton Mill.          | 40,000         | 106'6"                |             |         |          |
| Greenwood—Grendel Mills.         | 40,000         | 101'6"                |             |         |          |
| Greenville—Woodside Mills.       | 50,000         | 125                   |             |         |          |
| Spartanburg—Drayton Mills.       | 40,000         | 106'6"                |             |         |          |
| Clifton—Clifton Mfg. Co.         | 100,000        | 139                   |             |         |          |
| Belton—John B. Adler.            | 2,000          | 42'                   |             |         |          |
| Sampit—Georgetown Water Co.      | 75,000         | 130                   |             |         |          |
| Georgetown—Georgetown Wat. Co.   | 100,000        | 130                   |             |         |          |
| Belmont—Imperial Yarn Mills.     | 50,000         | 89                    |             |         |          |
| Iva—Jackson Mills.               | 50,000         | 129                   |             |         |          |
| <b>SOUTH DAKOTA</b>              |                |                       |             |         |          |
| Madison.                         |                |                       | 14          | 100     |          |
| Brookings.                       | 135,000        | 124                   |             |         |          |
| Webster.                         | 85,000         | 122                   |             |         |          |
| Millbank.                        | 80,000         | 120                   |             |         |          |
| Sioux Falls.                     | 230,000        | 129'1 $\frac{1}{2}$ " |             |         |          |
| <b>TENNESSEE</b>                 |                |                       |             |         |          |
| Mt. Pleasant.                    | 40,000         | 100                   |             |         |          |
| Memphis—Memphis Trotting Asso.   | 50,000         | 69                    |             |         |          |
| Dyersburg.                       |                |                       | 27          | 50      |          |
| Springfield.                     | 75,000         | 120                   |             |         |          |
| Bolivar.                         | 50,000         | 120                   |             |         |          |
| Franklin.                        | 103,000        | 114                   |             |         |          |
| <b>TEXAS</b>                     |                |                       |             |         |          |
| Pilot Point.                     | 10,000         | 62                    |             |         |          |
| Hillsboro.                       |                |                       | 14          | 116     |          |
| Franklin.                        |                |                       | 10          | 75      |          |
| Plano.                           |                |                       | 12          | 80      |          |
| Corsicana.                       |                |                       | 20          | 100     |          |
| Wichita Falls.                   | 100,000        | 90                    |             |         |          |

# Chicago Bridge & Iron Works

| s<br>t.<br>t.                              | Stand Pipes | Location | Water Towers   |         | Stand Pipes |         |
|--|-------------|----------|----------------|---------|-------------|---------|
|  |             |          | Cap'y<br>Gals. | Ht. Ft. | Dia. Ft     | Ht. Ft. |
| <b>TEXAS—Cont'd</b>                        |             |          |                |         |             |         |
| Honey Grove.....                           | 150,000     | 120      |                |         |             |         |
| Houston—Weld & Neville Co.....             | 60,000      | 110      |                |         |             |         |
| Texarkana—International Creosoting Co..... | 70,000      | 113      |                |         |             |         |
| Amarillo.....                              | 60,000      | 80       |                |         |             |         |
| Marlin.....                                | 80,000      | 120      |                |         |             |         |
| Fort Sam Houston, U. S. A.....             | 70,000      | 94       |                |         |             |         |
| Fort Clark, U. S. A.....                   | 60,000      | 92'6"    |                |         |             |         |
| Marshall.....                              | 160,000     | 125      |                |         |             |         |
| Corsicana—Corsicana Cotton Fact.....       | 40,000      | 81'6"    |                |         |             |         |
| Austin—University of Texas.....            | 200,000     | 120      |                |         |             |         |
| Austin—Deaf & Dumb Institute.....          |             |          | 18             | 100     |             |         |
| Austin—University of Texas.....            |             |          | 6              | 15      |             |         |
| Alvarado.....                              |             |          | 12             | 100     |             |         |
| Sherman.....                               |             |          | 20             | 120     |             |         |
| Fort Brown, U. S. A.....                   | 50,000      | 79       |                |         |             |         |
| Clarksville.....                           | 80,000      | 80       |                |         |             |         |
| Jefferson.....                             | 40,000      | 60'      |                |         |             |         |
| Kingsville—Kingsville Land Co.....         | 50,000      | 104'     |                |         |             |         |
| N. Fort Worth.....                         | 100,000     | 100      |                |         |             |         |
| Pittsburgh.....                            | 50,000      | 100      |                |         |             |         |
| Hondo.....                                 | 50,000      | 79       |                |         |             |         |
| San Antonio.....                           | 15,000      | 100      |                |         |             |         |
| Midlothian—Water Co.....                   | 60,000      | 96'6"    |                |         |             |         |
| Jacksonville.....                          | 50,000      | 110      |                |         |             |         |
| Hodge—M. K. & T. Ry. Co.....               | 30,000      | 60'      |                |         |             |         |
| Llano—Llano Milling Co.....                |             |          | 15             | 100     |             |         |
| Kennedy—Kennedy Cotton Oil Co.....         | 30,000      | 95'6"    |                |         |             |         |
| <b>UTAH</b>                                |             |          |                |         |             |         |
| Murray—Am. Smelt. & Refin. Co. (2)         |             |          |                | 20      | 40          |         |
| <b>VERMONT</b>                             |             |          |                |         |             |         |
| Rutland—Chittenden Power Co.....           | 70,000      | 220'     |                |         |             |         |
| East Ryegate—Ryegate Paper Co.....         | 50,000      | 64       |                |         |             |         |
| <b>VIRGINIA</b>                            |             |          |                |         |             |         |
| Blacksburg—Agricultural College.....       | 50,000      | 120      |                |         |             |         |
| Danville—American Tobacco Co.....          | 50,000      | 129      |                |         |             |         |
| Richmond—American Cigar Co.....            | 60,000      | 131'6"   |                |         |             |         |
| Chatham.....                               |             |          | 20             | 40      |             |         |
| Lynchburg—American Snuff Co.....           | 40,000      | 93'6"    |                |         |             |         |
| <b>WASHINGTON</b>                          |             |          |                |         |             |         |
| Davenport.....                             | 60,000      | 85       |                |         |             |         |
| Pullman—Agricultural College.....          | 70,000      | 65       |                |         |             |         |
| <b>WISCONSIN</b>                           |             |          |                |         |             |         |
| Augusta.....                               | 60,000      | 140      |                |         |             |         |
| Westby.....                                |             |          | 16             | 50      |             |         |
| Oconomowoc.....                            | 80,000      | 115      |                |         |             |         |
| Viroqua—County Asylum.....                 | 40,000      | 100      |                |         |             |         |
| N. Fond du Lac—W. C. R. R. Co.....         |             |          | 25             | 60      |             |         |
| Lancaster—County Asylum.....               | 40,000      | 100      |                |         |             |         |
| Jefferson.....                             |             |          | 12             | 100     |             |         |
| Evansville.....                            |             |          | 12             | 75      |             |         |
| Stanley.....                               | 80,000      | 100      |                |         |             |         |
| Reedsburg (brick tower).....               | 60,000      | 100      |                |         |             |         |

# Metal Structures

Chicago Br.

Total Number

| Location   | Water Towers   |         | Stand Pipes |         | Total Number |
|--|----------------|---------|-------------|---------|--------------|
|  | Cap'y<br>Gals. | Ht. Ft. | Dia. Ft.    | Ht. Ft. |              |
| <b>WISCONSIN—Cont'd</b>                                  |                |         |             |         |              |
| Merrillan.....   | 50,000         | 110     |             |         |              |
| Janesville—County Asylum.....                            | 50,000         | 100     |             |         |              |
| Cuba City.....   | 65,000         | 124     |             |         |              |
| LaCrosse—County Asylum.....                              | 80,000         | 114'6"  |             |         |              |
| Fond du Lac—Fred Rueping<br>Leather Co.....              | 50,000         | 109     |             |         |              |
| Waupaca—Wis. Veteran's Home.....                         | 80,000         | 92'4"   | 20          | 60      |              |
| Abbottsford—Wis. C. R. R. Co.....                        | 50,000         | 129     |             |         |              |
| Milwaukee—National Electric Co.....                      | 100,000        | 164     |             |         |              |
| Milwaukee—Allis-Chalmers Co.....                         | 80,000         | 114'6"  |             |         |              |
| Oshkosh—Winnebago Co. Asylum.....                        | 75,000         | 110     |             |         |              |
| Barksdale—Atlantic Mfg. Co.....                          | 50,000         | 110     |             |         |              |
| Chetek.....  | 60,000         | 107'6"  |             |         |              |
| Kiel.....  | 30,000         | 78'     |             |         |              |
| Hazel Green.....   | 100,000        | 43'2"   |             |         |              |
| East Winona—C. B. & Q. Ry. Co.....                       | 50,000         | 145     | 20          | 80      |              |
| De Pere (2).....   | 20,000         | 91      |             |         |              |
| Owen—Wis. Cent. Ry. Co.....                              | 250,000        | 138     |             |         |              |
| Fond du Lac—County Asylum.....                           | 40,000         | 96'6"   |             |         |              |
| Kenosha.....   | 40,000         | 84'     |             |         |              |
| New London—Wisconsin Chair Co.....                       |                |         |             |         |              |
| Boyd.....  |                |         |             |         |              |
| <b>CANADA</b>  |                |         |             |         |              |
| Pictou, Nova Scotia.....                                 |                |         | 40          | 60      |              |
| Toronto, Ont.—Can. Gen. Elec. Co.....                    | 100,000        | 139     |             |         |              |
| Edmonton, Northwest Territory.....                       | 75,000         | 91      |             |         |              |
| Montreal, Quebec—Can. Pac. Ry.....                       | 75,000         | 85      |             |         |              |
| Niagara Falls, Ontario—Canadian<br>Niagara Power Co..... |                |         | 30          | 116     |              |
| Lethbridge, Northwest Territory.....                     |                |         | 20          | 80      |              |
| Winnipeg, Manitoba—Can. Pac. Ry.....                     | 125,000        | 135     |             |         |              |
| St. Boniface, Manitoba.....                              | 106,000        | 141     |             |         |              |
| Galt, Ont.—Goldie & McCulloch Co.....                    | 30,000         | 114'    |             |         |              |
| Montreal, Que.—Canada Car Co.....                        | 75,000         | 105     |             |         |              |
| Montreal, Que.—Sim. Ry. Appl. Co.....                    | 50,000         | 104     |             |         |              |
| Strathcona, N. W. T.....                                 | 120,000        | 120     |             |         |              |
| Sturgeon Falls, Ont.—Northern<br>Sulphite Mills.....     | 125,000        | 136'6"  |             |         |              |
| Aurora, Ont.....   | 60,000         | 60      |             |         |              |
| MacLeod, Alb.....  | 120,000        | 120     | 35          | 70      |              |
| Medicine Hat, Alb.....                                   |                |         |             |         |              |
| <b>CUBA</b>  |                |         |             |         |              |
| Nipe Bay—Nipe Bay Company.....                           | 12,500         | 109'6"  |             |         |              |
| <b>MEXICO</b>  |                |         |             |         |              |
| Mexico—Mex. Car. & Foundry. Co.....                      | 66,000         | 84      |             |         |              |
| Velardina—Mining Co.....                                 | 50,000         | 81      |             |         |              |
| Torreón.....   | 25,000         | 124     |             |         |              |
| <b>PANAMA, CANAL ZONE</b>                                |                |         |             |         |              |
| Culebra, U. S. A.....                                    | 50,000         | 65'     |             |         |              |
| Colon, U. S. A.....                                      | 400,000        | 112'6"  | 40          | 53'6"   |              |
| Mt. Hope, U. S. A.....                                   |                |         |             |         |              |
| <b>PHILIPPINE ISLANDS</b>                                |                |         |             |         |              |
| Parang—U. S. Naval Station.....                          | 100,000        | 80'     |             |         |              |

See detail list for location

## List of Railway

Delaware, Lackawanna & Wyoming  
Pennsylvania  
Boston & Maine  
Pittsburg & Lake Erie  
Cincinnati, New Orleans & San Antonio  
Chicago & Eastern Illinois  
Chicago, Burlington & Quincy  
Chicago, Rock Island & Pacific  
Missouri Pacific  
Missouri, Kansas & Texas  
Wisconsin Central  
St. Louis, Iron Mountain & Ship Island  
Peoria & Pekin Union  
Chicago, Milwaukee & St. Paul  
Chicago & Western Indiana  
Pere Marquette  
Canadian Pacific  
Erie  
Chicago, Peoria & St. Louis  
Lexington & Eastern  
Louisville & Nashville  
Oregon Short Lines  
Kansas City, Mexico  
Elgin, Joliet & Eastern  
Western Maryland  
Southern  
Trinity & Brazos River  
Atlanta, Birmingham

# *Chicago Bridge & Iron Works*

Total Number of Structures 690, Divided  
as Follows

|                                      |     |
|--------------------------------------|-----|
| OR Municipalities.....               | 370 |
| Factories and Mills.....             | 164 |
| Railways.....                        | 88  |
| Asylums and Public Institutions..... | 23  |
| Government Properties.....           | 15  |
| Schools and Colleges.....            | 12  |
| Private Estates.....                 | 8   |
| Pleasure Resorts.....                | 4   |
| Power Companies.....                 | 3   |
| Cemeteries.....                      | 2   |
| Nurseries.....                       | 1   |
|                                      | 690 |

See detail list for location and purchaser.

## List of Railways Using Our Steel Tanks

Delaware, Lackawanna & Western.  
Pennsylvania.  
Boston & Maine.  
Pittsburg & Lake Erie.  
Cincinnati, New Orleans & Texas Pacific.  
New Orleans & Northwestern.  
Chicago & Eastern Illinois.  
Chicago, Burlington & Quincy.  
Chicago, Rock Island & Pacific.  
Missouri Pacific.  
Missouri, Kansas & Texas.  
Wisconsin Central.  
St. Louis, Iron Mountain & Southern.  
Gulf & Ship Island.  
Peoria & Pekin Union.  
Chicago, Milwaukee & St. Paul.  
Chicago & Western Indiana.  
Pere Marquette.  
Canadian Pacific.  
Erie.  
Chicago, Peoria & St. Louis.  
Lexington & Eastern.  
Louisville & Nashville.  
Oregon Short Lines.  
Kansas City, Mexico & Orient.  
Elgin, Joliet & Eastern.  
Western Maryland.  
Southern  
Trinity & Brazos River Valley.  
Atlanta, Birmingham and Atlantic.

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ROGERS & SONS  
CHICAGO







